ELECTRICAL SOUTH

HUNTER FANS.

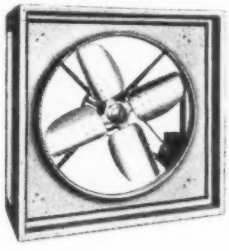
VENTILATION FANS

for the Home

HUNTER — pioneer manufacturer in the cooling field now offers—in our 60th year —the finest fan we have ever produced for ventilating the home.

An unusual treatment of a story and a half home which ordinarily presents a difficult installation problem is shown in the photograph. The HUNTER ZEPHAIR Cooling Unit with its silent operation, has been cooling this home for several years, and is still performing in its usual quiet, trouble free manner.

Dealers can sell the HUNTER line with complete confidence. Every fan is backed by an iron-clad policy of strict adherence to engineering perfection and precision manufacture. This has always been and will continue to be HUNTER's policy.

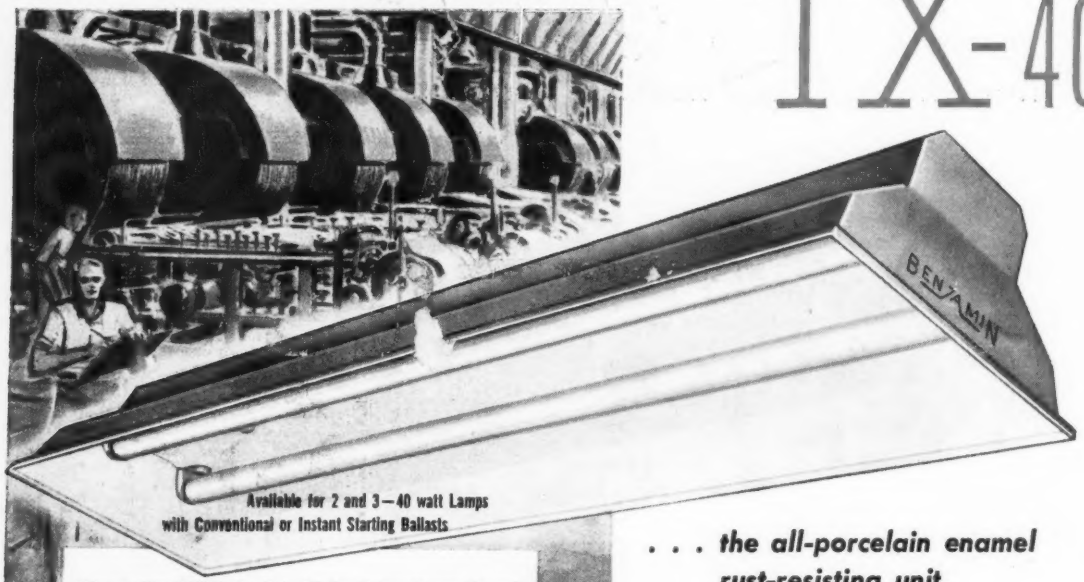


RESIDENCE OF S. F. HOMSELY, HOUSTON, TEX.

UNTER FAN & VENTILATING CO., IN

RA SALES OFFICES: MEMPHIS, 400 SO. FRONT ST. • EASTERN SALES OFFICE: NEW YORK, 92 WARREN
WESTERN SALES OFFICE: ST. LOUIS, 1706 OLIVE ST.
Offices: ATLANTA, CHICAGO, DALLAS, HOUSTON, LOS ANGELES, PHILADELPHIA, BOSTON, CLEVELAND, DETROIT
KANSAS CITY, NEW ORLEANS, PITTSBURGH

Humid, Damp and Dusty Locations call for this new one-piece Fluorescent Lighting Unit .... the new "TX-40"



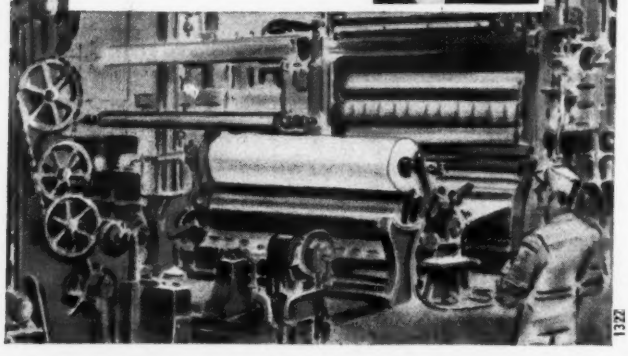
Available for 2 and 3—40 watt Lamps with Conventional or Instant Starting Ballasts

"Type TX-40" Embodies All the Advantages Found in All BENJAMIN FLUORESCENTS

- √ Benjamin Life-Time Porcelain Enamel
- √ Built-Like-A-Battleship Construction
- √ Easier Installation and Maintenance
- √ Certified Conformance to highest illumination, mechanical and electrical standards and specifications.

PLUS—

- √ SPECIAL RUST RESISTING HOUSING. Entire exterior of unit is single coated with gray porcelain enamel over a ground coat for extremely high resistance to rust. Inside section porcelain enameled with two white coats over a ground coat.
- √ ONE PIECE REFLECTOR HOUSING for durability and long life.
- √ REMOVABLE PORCELAIN ENAMEL STEEL PLATE on which control equipment is mounted forms the reflector top; removable by releasing two screws for easy wiring or inspection of ballasts.



1322

. . . the all-porcelain enamel rust-resisting unit.

Rust and other problems due to humidity and dust meet their master in the new Benjamin "Type TX-40." Now, even the most humid locations can be economically provided with fluorescent illumination through lighting units especially designed and constructed for such purposes.

"Type TX-40" Fluorescent Lighting units have wide applications in textile mills, paper mills, food plants, laundries and other process industries. In these locations the one piece all porcelain enamel construction of the "Type TX-40" unit provides durability and long life operation not possible with ordinary units. For complete data on these units and other Benjamin Fluorescent equipment . . . ***write Benjamin Electric Mfg. Co., Dept. Z1, Des Plaines, Ill.***

BENJAMIN
THADE MARK
PORCELAIN ENAMEL
Fluorescent
LIGHTING EQUIPMENT
Distributed Exclusively Through Electrical Wholesalers

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Entered as second class matter at the postoffice, Marietta, Ga., under Act of March 3, 1879
Volume 26 Number 2

Once Again Available...

OKONITE INSULATION

THE UNIVERSITY OF TEXAS
FEB 22 1946
THE LIBRARY

made with wild Up-River Fine Para Rubber

Here is important news — the return of Okonite insulation — made possible because the use of natural rubber has been authorized for those severe service conditions where wires and cables are to be installed in wet locations.

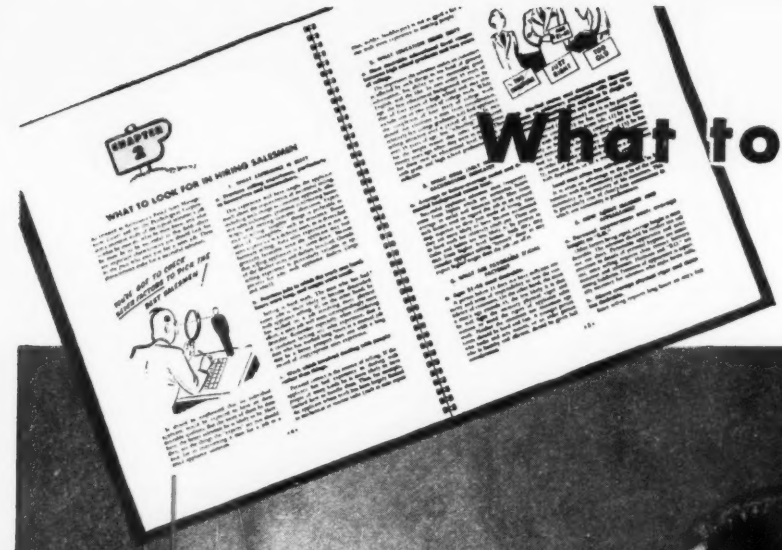
Back in November, 1943, when the supply of natural rubber was withdrawn, The Okonite Company announced that it would no longer be able to provide Okonite insulation because this high-grade compound could not be made without a particular kind of natural rubber — wild Up-River Fine Para Rubber.

Now, with the gradual return of natural rubber, the latest W.P.B. rubber order recognizes that certain vitally important needs for rubber must be served first. One of these is for wires and cables operating in wet locations, an installation condition where many years of service experience have shown Okonite rubber insulation to be outstanding.

Therefore, Okonite insulation made with wild Up-River Fine Para Rubber, applied to the conductor by the Okonite strip insulating method and vulcanized in a continuous metal mold, is once again available to the electrical industry for these restricted — but most important — applications. *Okonite insulation is exactly the same compound it always was, possessing the same characteristics which years of experience have confirmed . . .* its exceptionally long life, its ability to retain tensile strength and elasticity, its high electrical values. The Okonite Company, Passaic, New Jersey.

A complete story on Okonite insulation is available in Research Bulletin 101 which includes engineering details, illustrations of methods used to safeguard performance, and records of electrical tests.

OKONITE OKONITE SINCE 1878
insulated wires and cables 4401



What to look for in

LOOK AHEAD WITH

ONE OF A SERIES OF ADVERTISEMENTS ON THE KELVINATOR FRANCHISE NOW APPEARING IN DEALER TRADE PUBLICATIONS

hiring salesmen . . .

In the selection and hiring of his salesmen, the appliance retailer takes the first and most important step towards building the kind of business he wants to have. For upon their qualities . . . as men and as salesmen . . . depends in a large measure the success of his enterprise.

That's why this element is given such importance in Kelvinator's comprehensive Vocation-in-Sales Training Program . . . that's why one whole section of the guide "The Selection and Compensation of Retail Appliance Salesmen" is devoted to solid, factual, down-to-earth information and suggestions concerning the selection and hiring of the *right* kind of men. No "textbook theory," all of the subject matter is based on the practical experience of retail sales executives from leading department, furniture, appliance stores and utilities, as well as Kelvinator sales executives, and supplemented by the technical research of outstanding vocational authorities.

Under Chapter 2, "*What to look for in hiring salesmen,*" the following vital subjects are taken up in detail:

1. **WHAT EXPERIENCE IS BEST?**
2. **WHAT EDUCATION SEEMS BEST?**
3. **WHAT DOES EARLY HOME BACKGROUND INDICATE?**
4. **WHAT ARE FAVORABLE SOCIAL FACTORS?**
5. **HOW ABOUT MANNER AND APPEARANCE?**
6. **WHAT MENTAL ABILITIES ARE BEST?**
7. **WHAT PERSONALITY QUALIFICATIONS SHOULD YOU LOOK FOR?**

Here is "brass-tack" thinking . . . an important retail-minded contribution to sales management methods, which is based on the facts revealed by Kelvinator's famed Retail Sales Management Forum.

In every one of its other phases too, Kelvinator's great V. I. S. Program is retail-minded . . . because every phase grows out of a distinctively Kelvinator way of doing business that makes the Kelvinator Franchise . . .

The most Valuable Franchise in the Appliance Industry

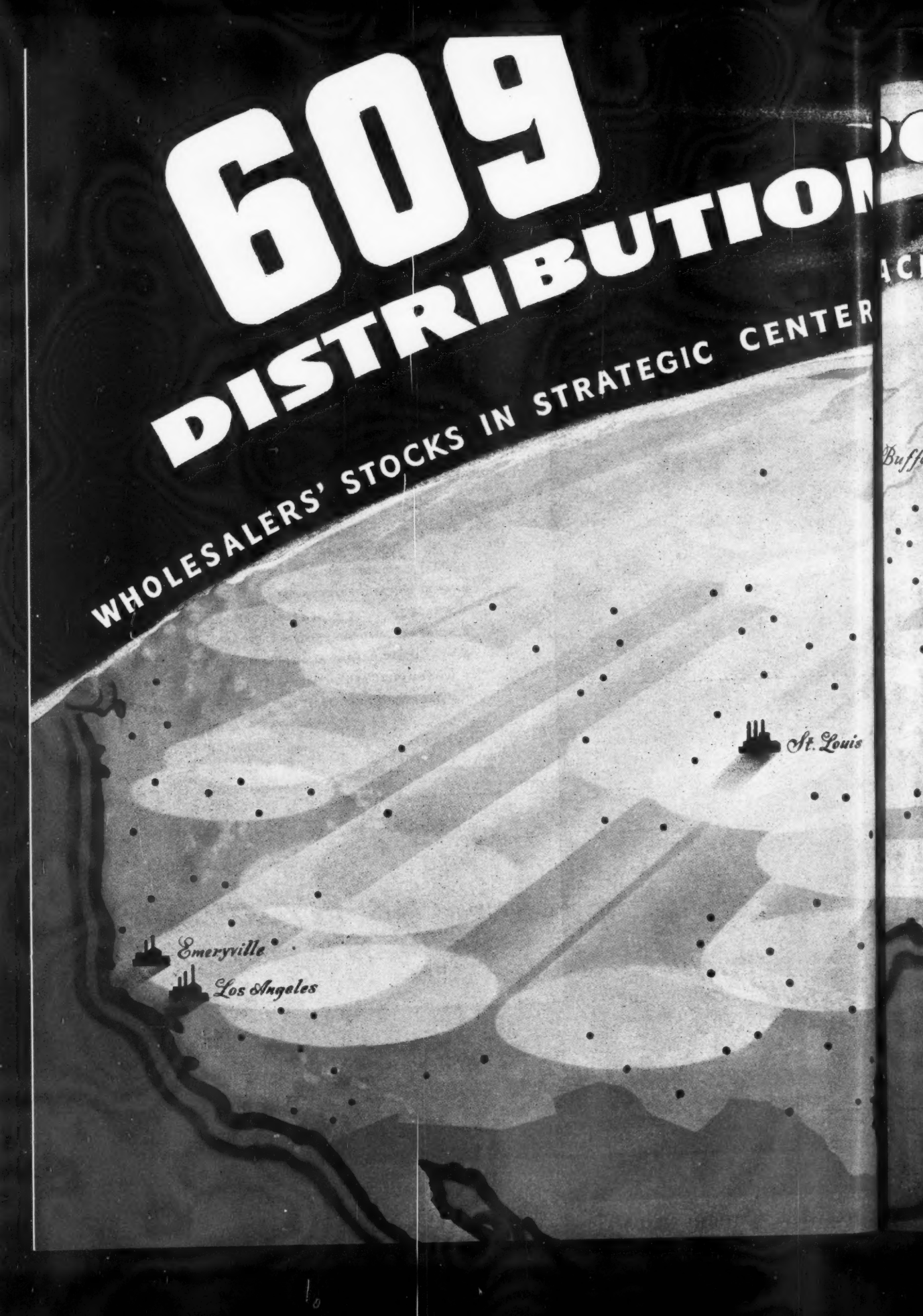
RETAIL-MINDED

Kelvinator

DIVISION OF NASH-KELVINATOR CORPORATION

Kenosha · Milwaukee · DETROIT · Grand Rapids · Lansing

Tune in **N-K MUSICAL SHOW-ROOM** Nash - Kelvinator's new hit musical show, with the Andrews Sisters, Curt Massey and Guest Stars—every Wednesday evening at 10:30 P.M., E.S.T.—Columbia Broadcasting System.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Franklin 1101

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2179 E. 18th Street
Main 5790

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Riverside 9888

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GENERAL CABLE

CORPORATION

AVOID COMEBACKS AND TROUBLE BY USING THESE . . .

PEDIGREE INSULATING VARNISHES

. . . The Product with a Pedigree!

Every *Pedigree Varnish* sold has been tested and service-proved by some of the world's largest electrical manufacturers. *Pedigree* means the best in the field — impregnating varnishes — varnishes for baking or drying — finishing varnishes — protective sealers — sticking varnishes — insulating compounds — machinery enamels.

Whether you need protection against oil, acid, alkali or moisture — protection against heat — maximum insulating qualities — tough and flexible coatings — *Pedigree* provides the *right* product to do the job *right!*

Insist on *Pedigree Varnishes* — guaranteed to satisfy or your money back. You won't get the best unless you say *"Pedigree."*

Send for Application Chart, Catalog and Samples

VARTEX CLOTH AND TAPE

. . . The Peak of Quality!

Dependable — low in cost — *Vartex Varnished Cloths and Tapes* insure all your repair jobs against failures and protect you against comebacks and customer dissatisfaction.

Vartex gives you all these qualities — easy-working flexibility at any temperature — great mechanical strength — high dielectric properties — and maximum resistance against oil, grease, acid, alkali, moisture, heat and abrasion.

Vartex is made only from the strongest long-staple cotton — the finest insulating varnish — under rigid scientific manufacturing controls — to insure perfect uniformity and the highest quality. *Vartex* is the cheapest insurance you can buy on your time and work. The sizes and thicknesses you need are carried in stock for immediate delivery.

Write Today for Samples and Prices

U-WEDJ* FIBRE ARMATURE WEDGES

. . . With the Perfect Shape!

IWI "U" Shaped Fibre Slot Wedges — *U-Wedjes* — give you the best possible protection against electrical and mechanical troubles and failures.

Formed to fit the motor slot perfectly, *U-Wedjes* protect and hold windings firmly in place — won't turn over in the slot — slip over both sides of the slot cell insulation — and permit windings to be placed closer to the top of the slot.

U-Wedjes are made of the finest fish paper — are easy to handle and use — come in standard 48" lengths or 250 ft. bundles — and do a swell all-round job! Try *U-Wedjes!*

Write for Free Sample Set, Mounted, Ready to Use

* Trade Mark Reg. U.S. Pat. Off.

INSULATION AND WIRES INCORPORATED

2127 PINE ST. • ST. LOUIS 3, MISSOURI

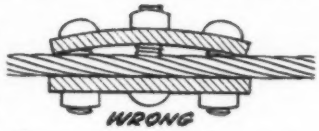
ATLANTA 3, GA. • HOUSTON 2, TEX.

Send for Your Copy of the IWI Blue Catalog.

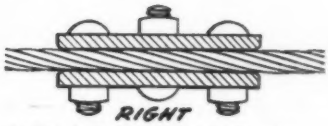
WHY?

DO HUBBARD STRAIGHT GROOVE GUY CLAMPS HOLD BEST?

1. **Because:** The **straight groove** eliminates the possibility of drawing a nut tight against an "arched" section which is out of contact with the strand.



Clamping area reduced by warped section. Causes slippage at low strains.



Hubbard Clamps have full clamping area. Hold to breaking strength of most strands.

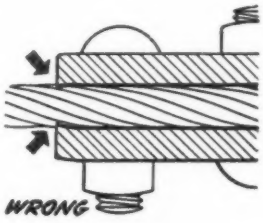
2. **Because:** The **straight groove** fits any and all twists, right or left hand and a variation in diameter without **creating** any high spots to **lessen clamping area.**

High spots in clamp reduce clamping area, cause slippage and injure strands.

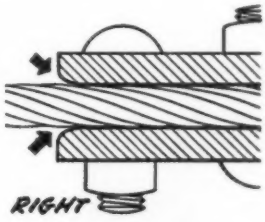
Hubbard Clamps fit snugly over any and all twists right or left and variations of diameter.

3. **Because:** Bell-end grooves prevent injury to the strand.

4. **Because:** High carbon bolts prevent stripping or elongation. Heads are locked against turning while tightening—and the whole clamp is protected against corrosion by the best process commercially used — HUBBARD DOUBLE-DIP HOT GALVANIZING.



Sharp edge from sheared section injures and weakens the guy at end of clamp



Rounded ends of Hubbard Clamp sections protect strand.

HUBBARD and COMPANY

Pittsburgh Oakland, Calif Chicago

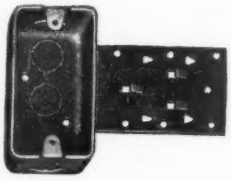
Builders, Contractors, and Architects the country over know that Raco is the famous name of All-Steel-Equip's quality line of steel switch boxes and outlet boxes. And you also can always rely on Raco. Here's why:

- No jagged or rough edges—no dirt or grease. Smooth, attractive appearance!
- Every Raco product comes neatly packed in a protective carton . . . with index showing number, quantity and finish. Easy to stock . . . easy to identify.
- All-Steel has been making precision metal products for over 33 years. The Raco line is made with the same care—to the same exacting standards!

Write today. Let us tell you more about Raco • All-Steel • Products . . . it's the dependable line, the uniform line, the line that's sold nationally through wholesalers only.

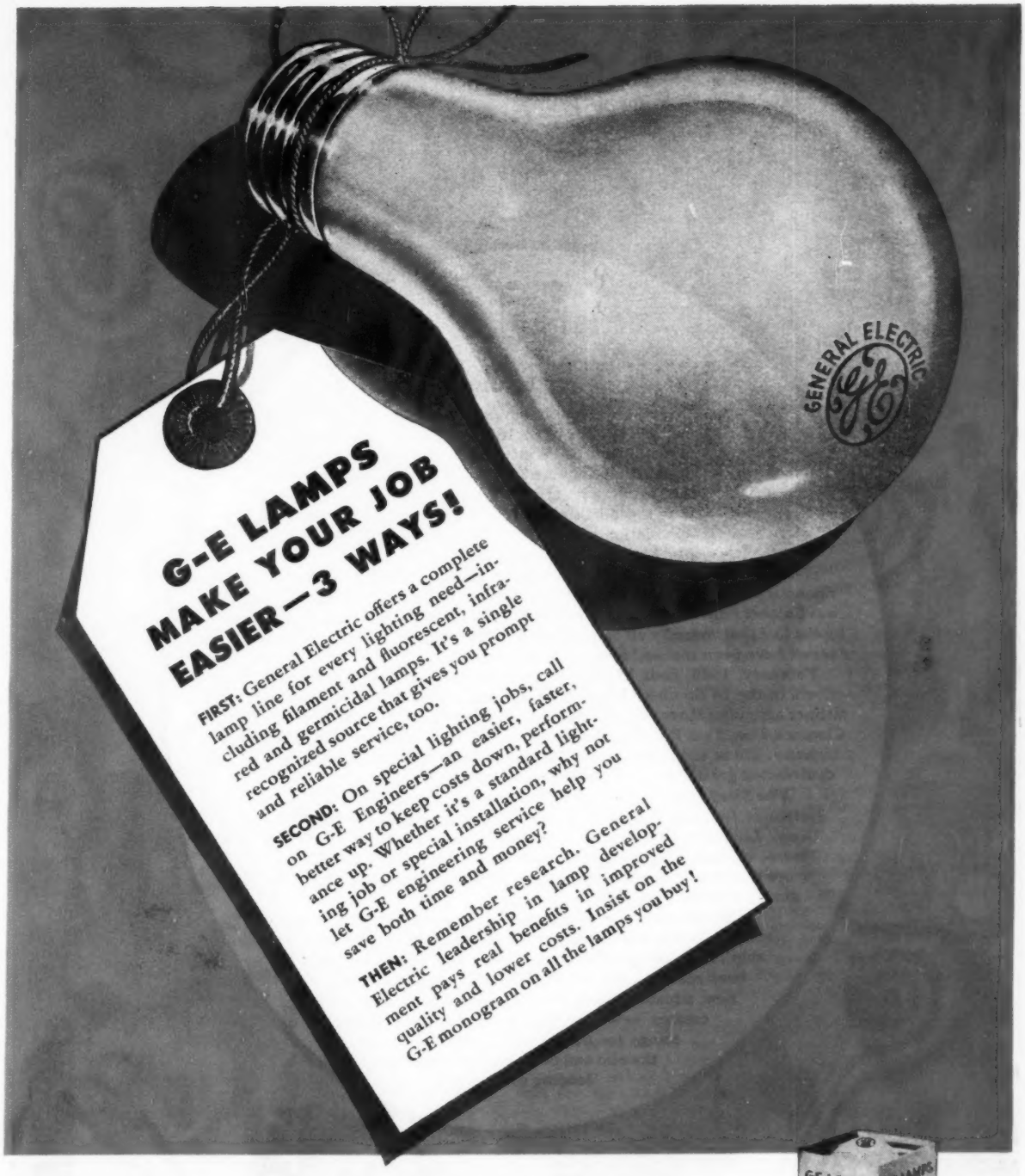
←400½-O—STANDARD (UTILITY) BOX. *With "Side-Mount" Bracket. Enameled or galvanized finish.*

400½-B—STANDARD (UTILITY) BOX. *With "Face-Mount" Bracket. Enameled or galvanized finish.*→



ALL-STEEL-EQUIP COMPANY, INC.
800 Kensington Avenue, Aurora, Illinois

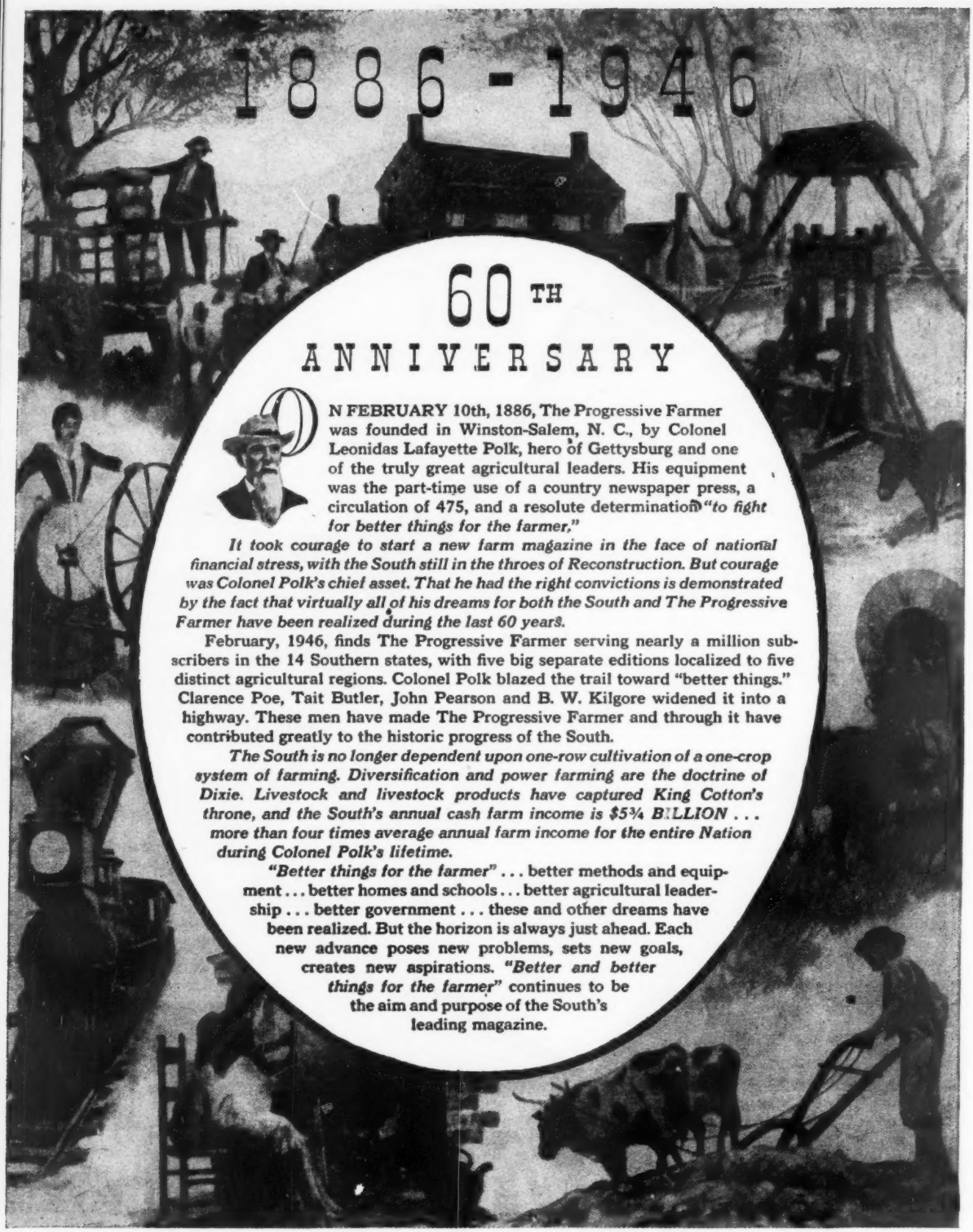
RACO • ALL-STEEL • PRODUCTS
SWITCH BOXES • OUTLET BOXES


GENERAL ELECTRIC
G-E LAMPS MAKE YOUR JOB EASIER—3 WAYS!
FIRST: General Electric offers a complete lamp line for every lighting need—including filament and fluorescent, infrared and germicidal lamps. It's a single recognized source that gives you prompt and reliable service, too.
SECOND: On special lighting jobs, call on G-E Engineers—an easier, faster, better way to keep costs down, performance up. Whether it's a standard lighting job or special installation, why not let G-E engineering service help you save both time and money?
THEN: Remember research. General Electric leadership in lamp development pays real benefits in improved quality and lower costs. Insist on the G-E monogram on all the lamps you buy!

G-E LAMPS

GENERAL ELECTRIC

the Lamps that Bring 'em In . . . and Bring 'em Back!



60TH ANNIVERSARY

ON FEBRUARY 10th, 1886, The Progressive Farmer was founded in Winston-Salem, N. C., by Colonel Leonidas Lafayette Polk, hero of Gettysburg and one of the truly great agricultural leaders. His equipment was the part-time use of a country newspaper press, a circulation of 475, and a resolute determination *"to fight for better things for the farmer."*

It took courage to start a new farm magazine in the face of national financial stress, with the South still in the throes of Reconstruction. But courage was Colonel Polk's chief asset. That he had the right convictions is demonstrated by the fact that virtually all of his dreams for both the South and The Progressive Farmer have been realized during the last 60 years.

February, 1946, finds The Progressive Farmer serving nearly a million subscribers in the 14 Southern states, with five big separate editions localized to five distinct agricultural regions. Colonel Polk blazed the trail toward "better things." Clarence Poe, Tait Butler, John Pearson and B. W. Kilgore widened it into a highway. These men have made The Progressive Farmer and through it have contributed greatly to the historic progress of the South.

The South is no longer dependent upon one-row cultivation of a one-crop system of farming. Diversification and power farming are the doctrine of Dixie. Livestock and livestock products have captured King Cotton's throne, and the South's annual cash farm income is $5¾ BILLION . . . more than four times average annual farm income for the entire Nation during Colonel Polk's lifetime.

"Better things for the farmer" . . . better methods and equipment . . . better homes and schools . . . better agricultural leadership . . . better government . . . these and other dreams have been realized. But the horizon is always just ahead. Each new advance poses new problems, sets new goals, creates new aspirations. *"Better and better things for the farmer"* continues to be the aim and purpose of the South's leading magazine.

The South Subscribes to THE PROGRESSIVE FARMER

Advertising Offices: **BIRMINGHAM, RALEIGH, MEMPHIS, DALLAS, NEW YORK, CHICAGO**

Pacific Coast Representative: Edward S. Townsend Co., San Francisco, Los Angeles

No Free Balloon!

There'll be NO FREE BALLOON at Premier. Expansion, yes, . . . but expansion anchored to the *long-range welfare* of Premier, its distributors and its dealers. We are determined to keep the Premier Vacuum Cleaner franchise the most valued in the industry . . . not only during the immediate months ahead *but throughout the years to come.*

Premier dealers, like *all* appliance dealers, are confronted with a demand for vacuum cleaners far greater than the entire industry can supply. Because this immediate problem distorts the true long-range picture, it demands careful analysis. Such an analysis, published by the *Trundle Engineering Company,* applies so pointedly to the current condition, that we are presenting a digest of it herewith.*

HOW FAR IS UP?

Here we are, launched into the postwar program. Everything is "up," by comparison to prewar. Sales quotas are up over prewar. Planned production volumes are up over prewar. Planned employment totals are up over prewar.

This is fine. Everybody in this country has been anxious to make sure that our whole level of economy, postwar, should be higher than prewar.

But just how much higher is it going to be? "How far is up?" The theory seems to be that markets are unlimited.

Just for purposes of argument, let's assume that somewhere in the Atlantic there was an island with a population of 2,000 grown-up males. Let's assume that on that island there was a hat factory that turned out hats for those 2,000 men. But in 1941, that hat factory stopped making hats for the men on the island. Instead, it made hats for the allied armies—and the men on the island went without hats. Since they went without hats for four years, the deferred demand might be assumed to be 8,000 hats.

Now the hat factory on the island has finished its war contract, it is back into peacetime production, and it is engaged in supplying its own domestic hat market. What is its potential sales volume? On the basis of deferred demand, the answer is 8,000 hats. But on the basis of practical considerations, the fact remains that since there are only 2,000 grown men on the island, all the hats that company can sell this winter *will be 2,000 hats.*

Now let's take an average town of 10,000 population, in the United States—and let's think about home heating. Let's assume that this town is served by natural gas. A market survey may show that during the war, 378 of the home heating units in that town may have gone bad, and are in need of replacement. The market survey may also show that that town needs at *least* 200 new homes. This makes a total of 578 home heating units as representing the potential home heating market in that town.

The people who are selling gas furnaces may cite this total as representing their sales possibility in this community. The people selling coal furnaces may likewise cite the same total. The people selling oil-burning furnaces may likewise cite the same total. But the oil people, the gas people and the coal people can't all sell the same market. The sales potential is there all right— but it has got to be shared somehow between coal, gas and oil. And the result is going to be one of the most competitive situations that this country has ever seen.

We are planning, in our United States, to make vast quantities of automobiles, and radios, and refrigerators, *and vacuum cleaners,* and all of the other things that our people want. Over a long period of time, the capacity of the public to absorb this production is practically unlimited; but the true demand today is of the utmost importance. Remember the hats.

Furthermore, the margin of purchasing power in the American household cannot be used in every direction at once. If a household buys an automobile, it may not be able to buy a refrigerator; if it buys a refrigerator, it may not be able to buy a radio; if it buys a radio, *it may not be able to buy a vacuum cleaner,* etc., etc. In short, all these industries cannot count upon realizing sales based upon the same margin of purchasing power.

Can American industry expect to sell, in 1946, or in the next five years, all the modern improvements that will bring all of the American homes up to what are considered proper standards of living? The answer is, definitely "no." It can't be done that fast. And if American industry tries to do it too fast, there is going to be trouble. Some producers are going to lose their shirts.

How far is up? Nobody knows. We would rather tie our balloon to the ground. We can always let out the rope.

** We'll gladly send you a copy of the complete booklet, "How Far is Up?", upon request—while they last!*

PREMIER VACUUM CLEANER DIVISION
GENERAL ELECTRIC COMPANY
CLEVELAND 10, OHIO

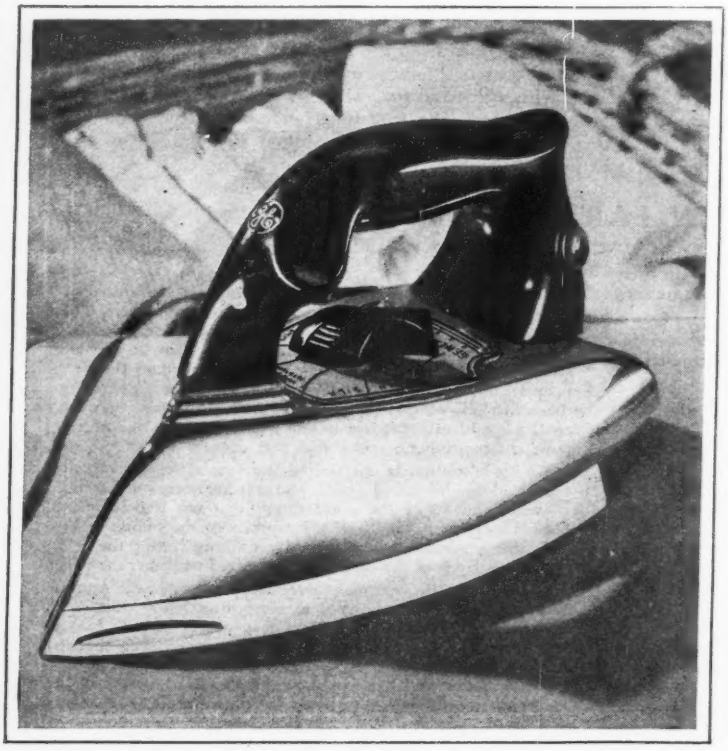
America's fastest-selling iron is the

G-E "Dial The Fabric" Iron

Know the iron that moves fastest from your counters to your customers? Just scan the *preference* picture . . . and instantly you'll see General Electric "Dial The Fabric" Irons are America's quickest movers.

Why? Because surveys show that women prefer this *fully automatic* new G-E model—*by over 2 to 1!*

They find it cuts ironing time by as much as one third. They like it for its famous G-E *"light that says when."* They go for its light weight . . . its splendid balance . . . its over-all G-E ironing efficiency.



And don't you forget—for the women don't—that it's the *only* iron with *all* these features:

Exclusive Calrod Unit heats up faster. Cast in a big 27-square-inch aluminum sole plate that helps speed up ironing!

G-E "Dial The Fabric" Control selects and keeps the right heat for every fabric!

Double Button Nooks make it easy to iron around and under buttons!

Built-in Thumb Rest relieves muscle strain; molded handle stays cool!

Millions hear the story every month!

G-E promotion with sales-pull *plus* is pushing this automatic iron in every corner of the United States.

It's a story that can't miss with appliance-hungry housewives today . . . a story that reaches millions of women *every month* in top-circulation magazines. And remember, G-E is the *only* appliance manufacturer that promotes sales of Irons, and other products, with a 5-days-a-week radio program—"The G-E House Party" with Art Linkletter, over CBS at 4 P. M., E. S. T., Monday through Friday.

Now's your chance to add *your* voice to selling these sales features of the G-E automatic iron . . . and capitalize on that already-vast market eager to buy it! General Electric Company, Appliance and Merchandise Department, Bridgeport, Conn.

Everything electrical for better living in your home

GENERAL ELECTRIC

THE BIG 3 OF ELECTRICAL DISTRIBUTION

Meet the "Big 3" of electrical distribution: BullDog BUStribution DUCT, Industrial Trol-E-Duct and Universal Trol-E-Duct!

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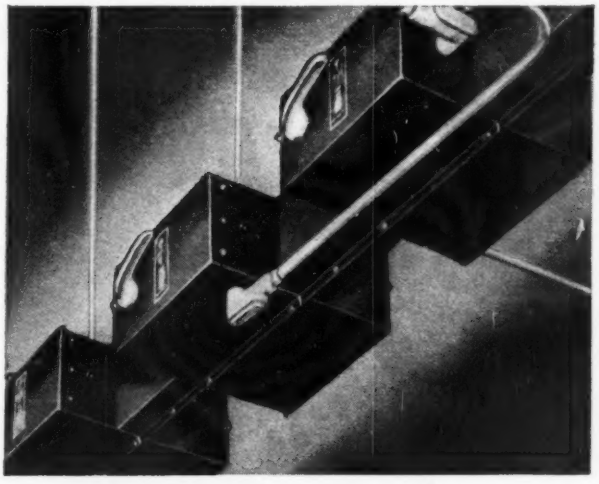

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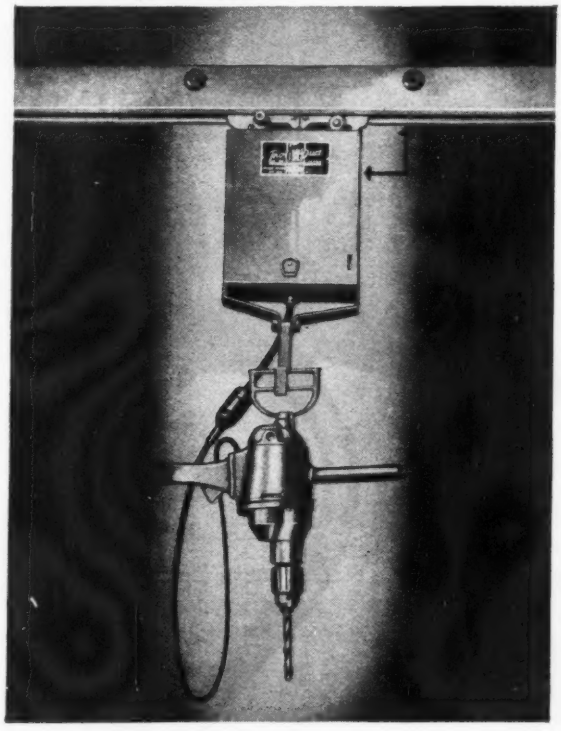
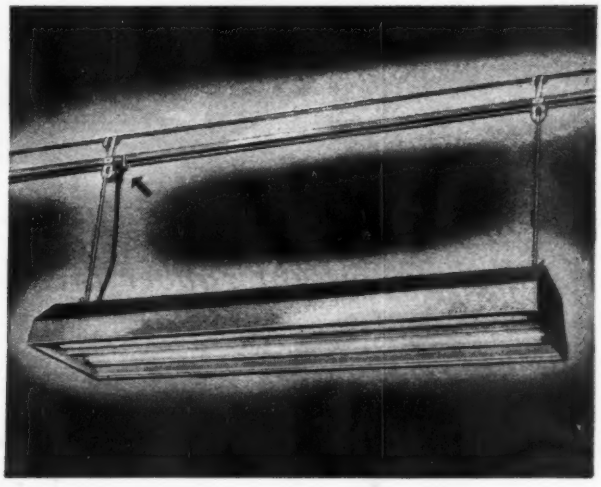


2 FOR PORTABLE TOOLS, Cranes, Hoists or similar moving "loads" BullDog Industrial Trol-E-Duct supplies a source of safe, mobile power by means of Trolleys which, as they move through the elongated slot in duct, transmit current from the duct bus bars to the moving load. RATING: 90 Amps. 575 Volts or less.



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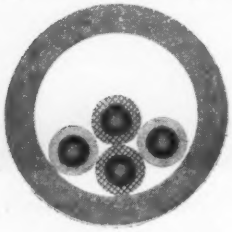

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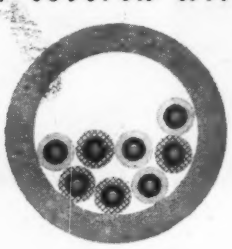

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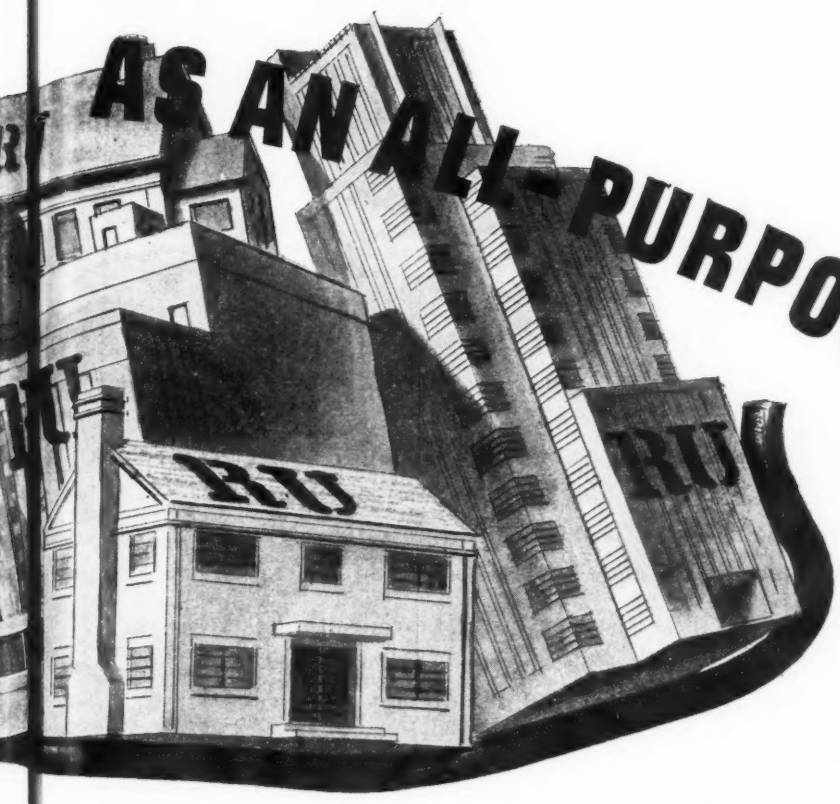

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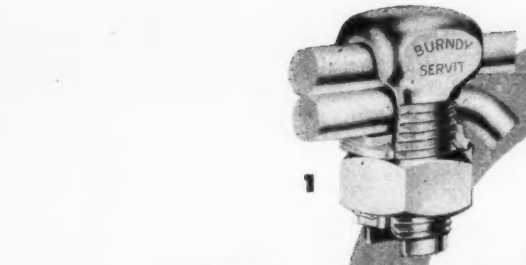

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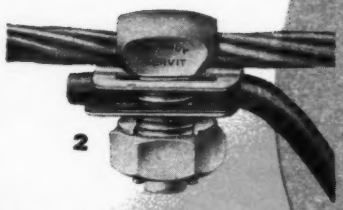

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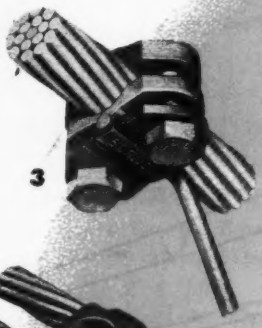

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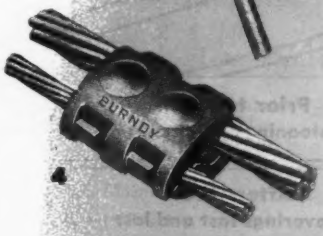

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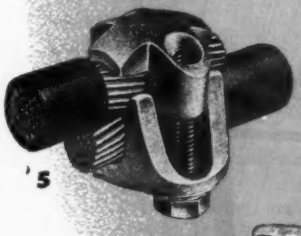

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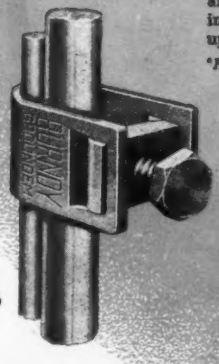

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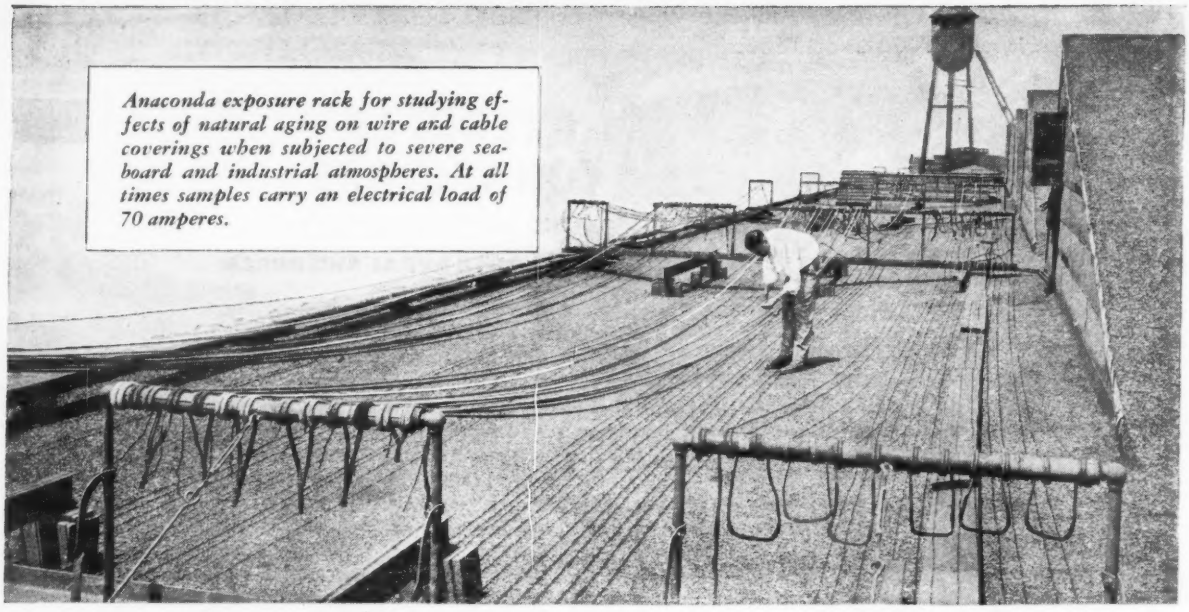

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Rigid tests prove URC Weatherproof lasts and lasts...

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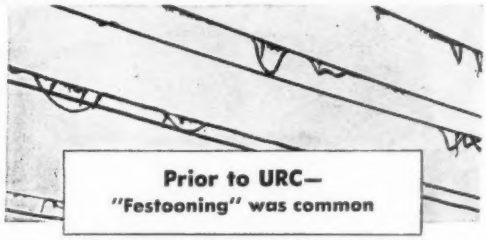

Prior to URC—
"Festooning" was common

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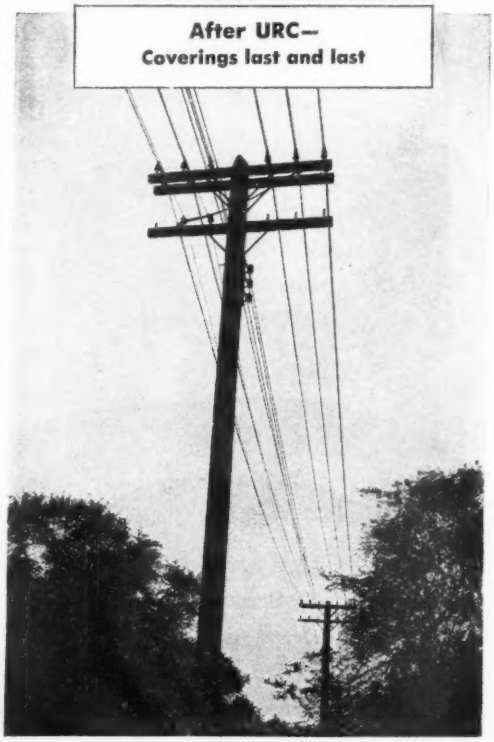
Coverings last and last



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LOOK TO *Anaconda* FOR WEATHERPROOF THAT LASTS!

ELECTRICAL SOUTH

FEBRUARY, 1946

VOL. 26 NO. 2

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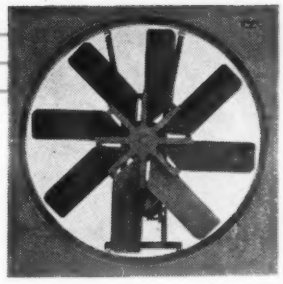

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High Installation Costs Endanger A-W Program

ADEQUATE WIRING is the electrical industry's number one opportunity and most of the industry recognizes it as such. Many light and power companies are devoting a considerable portion of their advertising budgets to the promotion of better acceptance of adequate wiring on the part of the public. Certainly, everyone expects the electrical contractor to handle this work on a profitable basis but there is every indication that installation costs have been raised to such an extent in some localities that there is danger of the demand for electrical equipment and adequate wiring diminishing in drastic fashion. Mr. Vecker presents an interesting analysis of this timely problem.

CUSTOMER surveys reveal that of the long list of items which the American public expects to buy immediately upon availability, six of the first seven items listed in order of preference were electrical appliances. Four of the six appliances require additional or permanent electrical wiring, and the others were dependent for maximum convenience upon the availability of convenience outlets.

The spread of complete home electrification will assume astounding proportions. It is because of this trend that I am justified in saying that satisfying the first and most popular desires of the public will create a vast demand for electrical wiring, thereby imposing upon the electrical contracting profession a tremendous obligation and responsibility.

Many of the items with high preference ratings are subject to price control and in almost every instance the price at which the items will be sold during postwar years will approximate the prices at which they were sold in 1942. Leading manufacturers of electrical household equipment have recently released prices on postwar models such as ranges, refrigerators, dish washers, and water heaters which reflect in some instances actual reductions in the selling price, while other items remain approximately the same as those marketed in prewar times. Many of these forward-looking manufacturers have taken another forward step in an effort to stabilize selling prices throughout the nation. They have announced the elimination of "F.O.B. factory" zone price differentials, as an indication of their determination to expand the vast seller's market which lies ahead.

The ultimate price to the consumer, however, of items which require permanent installations or additional wiring may be discouragingly high and not acceptable to the purchasing public, for the simple reason that electrical contractors are not required to install ranges, water heaters, or any other items within fixed OPA price limits. That the installed price in the immediate future may bear the same relationship to the prewar installed price as the retail sales price of the merchandise itself bears to its prewar retail price is worthy of careful consideration. If this condition does not prevail, the buying public may be faced with the situation wherein the retail selling price of an appliance is essentially unchanged, or maybe even lower than before, but the installation cost is possibly greater even than the very cost of the appliance. As a consequence, the present high demand for electrical equipment requiring additional wiring and the present interest in wiring new homes adequately will diminish in drastic fashion.

By S. Paul Vecker
Vice-President
Carolina Light & Power Co.
Raleigh, N. C.

Potential Market Threatened

It is not my purpose to say what the average installation charge of an electric range or any other item of merchandise should be, nor what a farmer should be charged for wiring his home. It is reasonable to suppose, however, that there are electrical contractors whose attitude toward the tremendous possibilities ahead may serve to influence an unwholesome attitude on the part of the public and consequently reduce materially that great potential which we can envision today.

To illustrate the point, I will cite a few examples.

My attention has been called re-

cently to house wiring quotations which range from $2.50 to $10 per outlet. Within the area served by my company in the Carolinas there are instances in which contractors located in towns within a short distance of each other have price structures on wiring which in some instances vary as much as 200 per cent. A recent survey of these areas disclosed that electric range wiring in some towns can be secured at a price ranging from $25 to $35 per range, while in nearby districts contractors are speaking in terms of $75 per installation. I have heard that many contractors will not be satisfied with less than an average of $75 for each electric range installation. In an area adjacent to the territory served by my company, and incidentally one of a more metropolitan type, the electrical contractors have met and are seriously considering a flat range installation price of $100 per unit.

I have in my possession a letter from one contractor who uses the following argument in support of an increase in his charges for electric range installation: "The increase is not due to rise in cost of materials and labor (although a few items have increased); but due to the fact that previously almost all wiring was contracted and naturally closer figuring was necessary in order to obtain the job. Now we find that our demand for work has increased to the extent that we do not have to bid on a job."

In the same letter the statement is made that prices for commercial wiring will increase proportionately. That contractor gives as an additional reason for raising his prices that the public has become better educated to adequate wiring. I cannot believe that the attitude expressed by the contractor whom I have just quoted is typical of the entire profession.

Since reference was made in this quotation to the increased price of material, I might add that upon inquiry we found that the average material used in range installations has increased but slightly over 1941 prices . . . a mere 3 per cent, so I am told. Furthermore, after substantial allowance has been made for increase in cost of labor—let us say a 50 per cent increase—we have been unable to reconcile this tremendous rise in price with the actual difference in cost.

I am glad that the contractor made reference to a better appreciation on the part of the public for adequate wiring. Such an attitude did not just happen, nor did it spring up as a result of the war. It was the result of an educational program which the electric utility industry has sponsored over a period of years. My company has spent substantial sums during the past two years in advertising the benefits to be derived from adequate wiring. Multiply this amount manyfold, for no doubt each company represented here has done its like share, and we can begin to appraise our efforts and evaluate their expected results. Expenditures of such character would not have been made had we not expected them to yield an ultimate return. Such a return will not merely benefit the utility industry, but will benefit also builders, contractors, dealers, distributors, manufacturers, and everyone directly and indirectly associated with our industry. A better appreciation for adequate wiring means more circuits of larger wire and more outlets conveniently placed. The installation of such wiring jobs requires more man-hours of labor—hence, more buying power. Everybody benefits from this type of program.

Program Mutually Advantageous

It is not my purpose to suggest the amounts to be charged for materials or labor, for if there are any increases in costs, they must be reflected in the price structure. I am tremendously concerned, however, about what could happen if a number of contractors such as I quoted, bent on taking advantage of the seller's market, increase prices to such proportions that this new demand for electrical equipment is stifled a-borning. Very naturally we should like to see the demand grow because our industry is interested in supplying additional kilowatt-hours to the consumer public. The electrical contractors should be interested in seeing the demand grow because in the satisfying of it their volume and profit will grow proportionately. Manufacturers and distributors of not only electrical appliances but of wiring material too would receive direct benefits.

Let us assume for the moment

that electrical contractors in the southeastern area adopt a "take it or leave it" attitude and quote wiring prospects on a basis of $10 per outlet and range installations as high as $75 or more—and I repeat again, these are not figures I have pulled out of thin air; they have been passed along to us as estimates of what some contractors are planning to charge. If such is the case, I repeat again, this will most likely happen: the present high demand for electrical equipment requiring additional wiring and the present interest in wiring new homes adequately will diminish in drastic fashion.

The cost of house wiring in rural areas as quoted by certain Carolina contractors appeared so much out of line that REA in its effort to carry out its expansion program, interested an out-of-state contractor to move into the Old North State and submit bids on wiring rural homes. A contractor from Columbus, Ohio, was given a contract on a basis of $2.50 per outlet involving several thousand rural homes. On this basis he was able to meet every state requirement, pay his special license for doing business, and import labor from Ohio to carry out the contract on that price basis.

What Is Fair Price per Outlet?

It was further told us that the actual cost of labor on the basis per outlet was sub-let for $1 per outlet and that the material involved plus any other incidentals amounted to considerably less than the $2.50 price quoted, thereby reflecting a net profit on each installation. This contractor, we have been informed, expects on the basis of such prices to net upwards of $40,000 in profit within the next two years. If one foreign contractor can make such a good profit at a rate of $2.50 per outlet, why would it be necessary for another contractor, established locally and following the same specifications, to charge $10 per outlet?

You and I know that "one swallow does not make a summer," and I admit freely that one irregularity in the fixing of prices does not establish a precedent, so let us pursue the subject further. Most of us will agree, I believe, that conditions in the Carolinas differ in no great degree from those represented here. It is reasonable to conclude, therefore, that there is no special formula which reacts to the benefit of neighboring contractors. An investigation proves, however, that house wiring contracts are being let in many states on a basis

of $3.50 to $5 per outlet in the case of individual homes. Where a number of homes are covered by the same contract, the price per outlet drops to as low as $2.50. Electric range installations will average $35 each. Some are being made at $25 and some are being quoted as high as $75. The installation cost of commercial equipment bears a similar ratio to cost in the residential field.

In one Southern city located outside of the Carolinas, a contractor-dealer negotiated successfully the sale of an all-electric heavy-duty kitchen, the agreed price of which did not include the installation of the equipment. Bids for installation were received, the most favorable of which was at a total cost of $4,500. This was considered excessive by the dealer and after much study and consideration the dealer was successful in getting the contractor to reduce the installation charge from $4,500 to $2,500.

In another city a heavy-duty range installation was quoted originally at $600 but was finally reduced to $456. This job was lost to a competitive fuel. I am inclined to believe, however, that it could have been saved had the contractor made an analysis of the material and labor required before submitting his original bid, for a subsequent analysis disclosed that this job could have been installed for $375 and allowed the contractor to make a fair profit.

In still another instance it was found that a price of $275 was quoted for the installation of an average-size electric fry kettle. The appliance itself was quoted at less than half the installation cost and in this particular instance the installation could have been made for $175 after allowing a liberal profit to the contractor. This job, too, was lost to competitive fuel.

In each instance cited no electrical contractor, no electric appliance manufacturer, distributor or dealer and no electric utility realized a penny of the potential profit.

In the light of situations such as these I should like to ask what influence can this practice—if continued—be expected to have upon the tremendous market which awaits our development? In my opinion the result will be very similar to that experienced by the person of fairy tale fame who was not content to collect his golden egg each day, so killed off the goose which laid the daily egg in order to come into possession of all the gold at once. You know the rest of the story.

If the impression is created during

the period when merchandise first becomes available that the cost of installing it is prohibitive, the effects will be of a lasting nature. Even the prospect who has practiced thrift during the years of scarcities will not consider it good business to pay a premium to satisfy an expressed desire if competitive equipment which will do a reasonably satisfactory job can be had at a much lower installed price. By the same token the home builder who has been educated to a better appreciation of adequate wiring will be content with minimum standards if upon investigation he finds that the realization of his plans requires the payment of too high a premium; and once a home is built without wiring adequacy the possibility of appliance and energy sales to that home has been permanently limited.

Earlier in my discussion I stated that even a layman would be interested in the solution of this problem for it has to do indirectly with the future of our economic structure. Not just the utility industry or the Committee for Economic Development or some trade association or chamber of commerce, but everyone is interested in the prevention of that plague called "unemployment." All during these warring years we as a people have looked forward to the return to peace, sincerely hoping that it would not mean another period of inflation and subsequent depression with idleness which prompts federal aid through dole and other subsidized forms bordering on charity.

Full Employment Wanted

We want full employment, and I can think of no better means of guaranteeing or providing full employment and contentment than an orderly expansion of the markets which it is our responsibility to develop. And an orderly expansion can be brought about only by giving the customer the maximum value for the minimum cost. For the customer expects to be in a position to satisfy his needs and desires at a price which must agree with some preconceived notion of a fair profit for merchandise bought and service rendered. If such a result can be attained, we need not be too much concerned about some mystic formula for the creation of sixty million jobs.

Let us analyze quickly this problem and its direct relationship to employment. As demands for the electrical contractors' service increase, a proportionate increase will be experienced in the demands for materials required. The supplying of these materials creates work all the way from the labor which is employed to install them—back through the dealer, the distributor, the manufacturer—even to the fields where the raw material is grown and to the mountains where the ore is mined.

I wish it were possible to determine the exact number of man-hours required to unearth, grow, process, fabricate, distribute, and install the materials involved in wiring one modest home. Whatever number it happens to be, when multiplied by several million awaiting construction, it would produce a figure representing gainful employment for untold thousands of workers.

By the same token, the installation of ranges, dish washers, water heaters, refrigerators, home freezers, air conditioning and laundry equipment and many other items will require, if traced all the way back to the origin, untold thousands of jobs. As people are employed and payrolls are produced, prospects are developed and additional equipment requiring installations will be sold. An endless cycle involving contractors and their services can be developed provided the desire to take all of the profits at the surge does not becloud the longer view.

We must not overlook the hundreds of thousands of jobs involved in the design, manufacture, distribution, selling, and installation of the different types of utilization equipment designed for the home, farm, store, and shop and which, according to economists and confirmed by numerous surveys, will be purchased in greater volume than ever witnessed in all history. But these workers will not be needed if the channels through which distribution is to flow are blocked by price structures employed among the contracting profession. Yes, that will virtually ruin the seller's market and in so doing create mass unemployment to the

(Continued on page 26)

Traffic-Stopping Lighting Job Utilizes Slimline Lamps

SLIMLINE fluorescent lamps find their first large scale usage in the remodeled seven-story store of the American Sporting Goods Company, of St. Louis, Missouri.

When Harold Siebens, head of the firm, bought the building which now houses American Sporting Goods Company, he had formed certain definite theories about illumination. He expected it to do an advertising job through sheer eye appeal, sell more merchandise by visibility from the street, and furnish a more attractive shopping atmosphere than the usual sporting goods store can offer. Therefore, he set the following minimums before contracting for the world's first major installation of slimline fluoresecent lighting.

Flush-Type Fixtures

First, it was specified that all fixtures were to be furred flush in the ceiling. Second, to do away with dark areas and dim visibility, the system had to provide a minimum of 50 foot-candles at all merchandise display points throughout the store. Third, it had to provide this sharp visibility all the way back from the windows while yet glareless, soft and cool. Lastly, "architectural long lines" had to be followed, in kev with the long, narrow layout of the store itself.

Lighting also had to be adjustable to two or more levels in compensation for bright and dark days, readily interchangeable, and easily maintained from a cleaning and replacement standpoint. Due to the vast number of merchandise items carried, and the odd-shaped display fixtures involved, lighting had to be carefully planned at every step—to make the store an eye-catcher at night and day alike, sharply delineate small details of merchandise to passersby—and otherwise appeal to sports-minded customers.

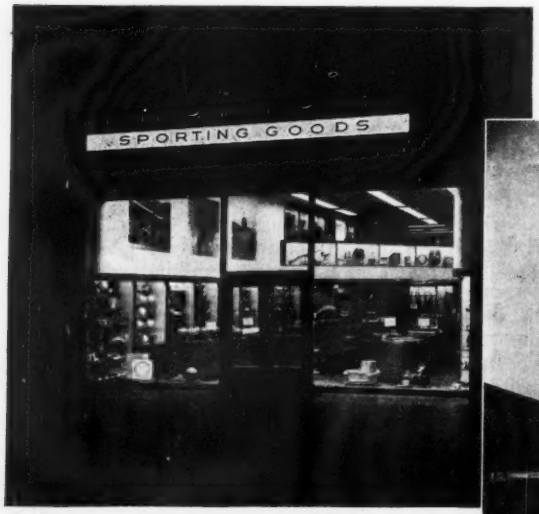
Each of these features has been met by the installation made by Joleco Corporation, St. Louis electrical contractors, and Design, Incorporated, building remodelers who transformed the thirty-five year old building into the nation's largest retail sporting goods store.

"Slimline" fluorescent lamps were selected for the bulk of the job, chosen for high efficiency, versatility, compact size and easier maintenance than the standard fluorescent and incandescent types used elsewhere through the building. Joleco Corporation specified this new type of fluorescent lamp for several reasons, chiefly the 63 lumens per watt developed and optional operation at 200 milliamperes or 100 milliamperes for various brightness levels. Also, fewer lamps were required to maintain the required foot-candle average, meaning less cleaning and replacement, and the thin, long design fitted in well with the store architecture.

As pictured, the result is an eye-appealing store which is one huge "display window." Fifty foot-candles minimum on the salesfloor and in the display niches lining the walls make so small a detail as printing on merchandise boxes readily visible from the street. Ablaze with light until after midnight daily, the store has rung up a tremendous volume of sales which justify Mr. Sieben's theory that "seeing is the biggest thing in selling."

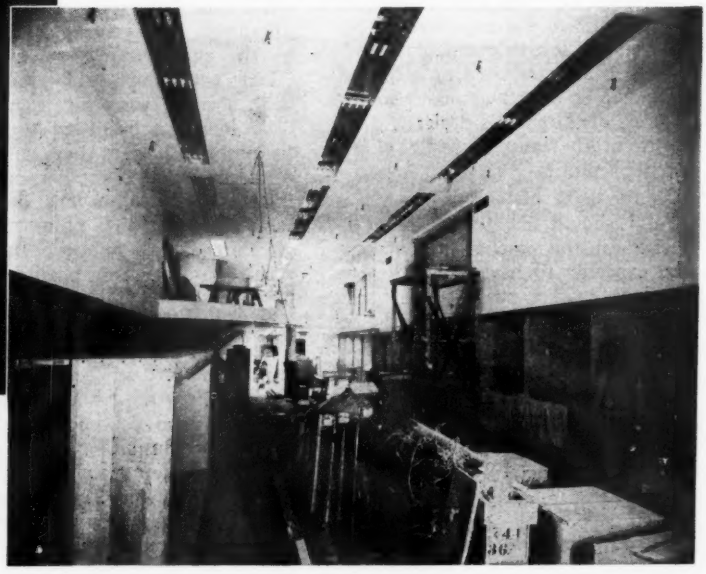
300-Watt Spots Used

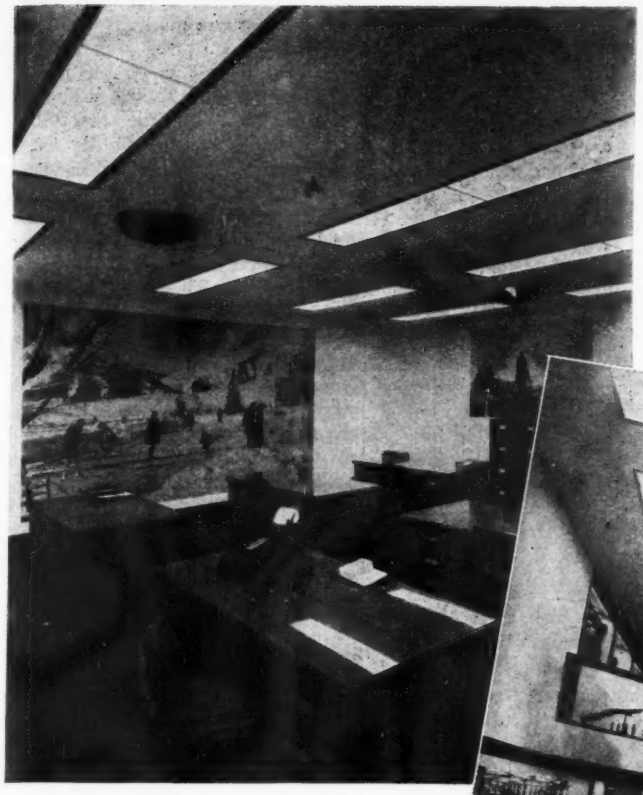
The first floor general sales area is lighted by twelve 6-lamp eight-foot slimline fixtures of the egg-crate type flush with the ceiling. These are mounted in four rows on eight-foot centers, two 6-lamp, 8-foot fixtures running widthwise centered three feet from the front. In combination with these the contractor installed twenty-eight 300-watt reflector spot lamps on 9-inch centers, to help control daylight reflections and to



Lighting up to a 50 foot-candle level, American Sporting Goods Co., of St. Louis, has made its entire first floor a huge display window. The job is one of the first large scale uses of slimline lamps.

Taken during construction, this view shows how the slimline fluorescent fixtures were installed to form lines of light flush with the ceiling. The fixtures are 6-lamp, 8-foot egg-crate units.





Slimline fluorescent lamps were chosen for the principal lighting of this modern store because of their high efficiency, versatility, compact size, and easy maintenance. A particular advantage is the fact that the lamps can be operated at either 100 milliamperes or 200 milliamperes. This makes it possible to operate the system at different brightness levels according to outdoor light brilliance. Photograph at left shows the general office lighting.

These views of the first floor lighting shows the eye-appealing results obtained by careful design. The 50 foot-candles minimum on the display floor and in the wall niches shows every detail of the merchandise.

In combination with the flush-type fixtures, the contractor installed 28 300-watt reflector spot lamps on 9-inch centers to help control daylight reflections and to provide punch lighting in the show window area. Directly behind the windows, light intensity is 300 foot-candles on a plane 40 inches above the floor. The store has already rung up a tremendous sales volume.

provide punch lighting in the show window area. The total here is 300 foot-candles in a plane 40 inches from the floor behind the windows, for "eye smashing" attention day and night.

The remaining rows of slimline-lamp fixtures maintain from 100 to 65 foot-candles back through the showcase area. Under the mezzanine are 16 smaller slimline fixtures, from two to four lamps, which are mounted in rows across the ceiling width on 7-foot, six-inch centers. These produce 40 to 45 foot-candles, ample in the short space involved. Any passer-by with normal eyesight can clearly see any item as small as a baseball under the mezzanine from the sidewalk.

Over the mezzanine are eleven slimline fluorescent fixtures in rows across the width, parallel to ceiling beams on seven-foot, six-inch centers. All four-lamp units, these provide 40 to 45 foot-candles at close range for shoes, jackets, sport shirts, sweaters and team uniforms sold here.

Each of the 59 display niches which appear on both walls and along the mezzanine balcony front is likewise individually lighted to maintain at least 50 foot-candles, by fluorescent lamps in combinations of two to five units, and various lengths according to size. Standard fluorescent is used in 21 of these, where the slimline lamp proved too long—but in all cases the lighting was carefully arranged to eliminate shadows and low visibility spots. As shown in the photograph, details of guns, tennis racquets and games along the balcony front are clearly visible from the street. The first floor when all lamps are operating at 200 milliamperes is the most brilliant commercial sales area in St. Louis and has attracted much attention.

Flexibility Achieved

No less important, however, is the second floor level where larger-sized items such as canoes, tents, outboard motors, diving boards, etc., are concentrated. This more open space is illuminated by 25 slimline fluorescent ceiling fixtures, ranging from two to four lamps, and from 24 inches to eight feet, and spaced in single units on 9x12 foot centers. Foot-candles maintained are 40 to 45 at floor level. The slimline lamps are burned at 200 or 100 milliamperes according to outside brilliance. Inasmuch as all air circulated through the building passes through a precipitron dust-remover before entering, lighting is at near-peak at all times.

The second floor lavatories are equipped with two 15-watt germicidal units mounted seven feet above the floor, one to each room.

On the third floor, where retail and wholesale areas are combined with offices, standard and slimline units are combined in the ceiling, in rows across the width comprised of one 4-lamp, 8-foot fixture and two 4-lamp, 6-foot units in rows on eight-foot centers. Twenty-four fixtures are combined, in sizes appropriate for the display or work beneath, including 64 standard fluorescent lamps and 28 of the slimline variety. Two offices are included. The foot-candle average in the open area is 50 to 55 for showing large amounts of sport goods concentrated together, while office fixtures, each a four-lamp, six-foot model, give 35 foot-candles at the desk tops, 18 at the floor level. Four more standard fluorescent units are employed in the hallway and corner areas, with another 15-watt germicidal unit in the men's lavatory.

Germicidal Lamps Used

Executive and general offices are on the fourth floor, utilizing both slimline and standard fluorescent lamps in 21 fixtures spaced in rows on 6-foot centers. There are four private offices. The 21 fixtures range from 2 to 4 lamps, 24 inches to 6 feet in length, and maintain the unusually high average of 55 to 60 foot-candles through the general office area. Each of the private offices averages 65 foot-candles at desktop levels, and has an S-2 sunlamp centered over the desk for healthful rays. There are three germicidal lamps, 15-watt types, in the men's and women's lavatories, plus a private lavatory for executives.

Joleco Corporation used some 150 standard filament lamps in the shipping room, receiving room, stock room, and warehouse areas, and in the basement space. RLM industrial 40-watt fluorescent units are installed in the shipping room over the packing tables and bins, and similarly in the receiving department. Wall cases on the third floor are lighted with standard filament lamps. Slimline fluorescent lamps were used everywhere possible with their long length and peculiar advantages. Due to lack of precedence, the St. Louis contractor had to build all fixtures and housings in a short period "from scratch," and deserves a lot of credit for the efficient egg-crate type developed.

A merchandising feature in the first floor lighting circuit is the use of an automatic time clock built into the system. Through its use, American Sporting Goods Company can leave all or part of the first floor circuit burning until a pre-determined time, when it automatically cuts off. A master switch at the door permits lights to be turned on or off at will regardless of the clock setting. To date the store has kept the first floor illuminated until midnight, as a "traffic stopper" which produces many new customers.

All foot-candle levels mentioned are calculated maintained foot-candles, figured conservatively at a 75% maintenance factor. These levels actually are quite higher due to the fact that the American store is completely air-conditioned at all times and the air filtered by precipitron as mentioned. Joleco Corporation slightly overpowered the entire job in order to maintain the minimum average of 50 foot-candles.

Total connected light load is 49,521 watts, of which only 6,768 watts is distributed through the basement, fifth and sixth floors. The "punch lighting" on the first floor accounts for 17,692 watts, and the total for the first, second, third and fourth floors is 42,753 watts.

High Wiring Costs Endanger Program

(Continued from page 23)

end that all of our moneys spent in promoting utility services will net a diminishing return.

This is a serious matter . . . it is something in which the utility industry is assured that practically all people . . . rank and file, would look most kindly on any steps taken to solve such a problem. I do not have the answer. I do know that in the Carolinas within our area served there are over 100,000 homes and farms and at least 500 cooperative dealers to which could be added all manufacturers and distributors serving the area, who are looking forward to this market . . . a period during which time the dreams which they have been dreaming for four long years will come true.

It is my feeling that every electrical contractor who is inclined to look upon this problem with indifference and adopt a price-fixing policy which would serve as a deterrent to progress should know these facts. Many of them are leading citizens in their communities and have contributed liberally in their efforts during the war in stabilizing the home front. That spirit should not cease with the signing of the peace. It should live on during these reconstruction days as we endeavor to rebuild and re-establish a great America.

Charting the Future In Appliance Sales

ACCORDING to Al Robertson, appliance dealer in Oklahoma City, it is just as important for an appliance dealer to chart his future course as it is for a motorist to have a highway map.

And he has done something about it.

He has made a chart on which he has placed actual figures of what his sales are to be each year, what his expenses are to be, what his salesmen are to sell and what they are to make, and what his repair business will be.

In addition he is working out a basis on which to charge each department up with the square feet of floor space it uses. The department can then either sell enough to use the space, or lose the space by having it cut down to the size of the volume the department produces.

Such a plan must have a starting point. This starting point will be different for every person who uses a similar plan.

Mr. Robertson expects each department to produce $1,000 per square foot per year. For instance, he expects to sell 154 electric sewing machines in one year for $15,400.00, and has allocated fifteen square feet to the sewing machine department. His advertising bill for the year for sewing machines will be $78, and he can spend it anyway he wants to—newspaper, billboard, direct mail, and radio.

Mr. Robertson started with the population of Oklahoma City, which is something over 200,000, and the amount of money he wants to make.

According to naitional figures, there should be 36,000 wired homes in a city of 200,000. All of these wired homes are prospects.

We'll take a sample item like electric refrigerators, but he has charted every appliance just like this one.

He records that the average refrigerator will sell for $150. Pre-war records show that refrigerators were sold at the rate of 129 per year per 1,000 wired homes. For Oklahoma City the potential sales would be 5,244 per year by all the dealers. Mr. Robertson figures on getting ten per cent of all the business in town. Accordingly, he will sell 524 refrigerators for which he will receive $78,660.00.

He is going to spend 5 per cent of his gross on advertising. He set this figure high because he plans to sell more than 50 per cent of his volume on the floor by using heavy advertising and save salesmen's commission and salaries on this part of the gross.

Five per cent of the refrigerator gross will amount to $3,933.00, and he will spread this with $3,300 to newspaper advertising and $633 divided between direct mail and billboards.

Take another one. The national average showed that washing machines were sold for $60 at the rate of 70 machines per 1,000 wired homes. On that basis, 2,520 washing machines per year of all makes and by all dealers will be sold in Oklahoma City. Mr. Robertson wants his ten per cent so he will sell 252 machines a year for which he will receive $15,120.00 and on which he will spend in advertising $796.00.

His two stores are doing more than $40,000 per year in radio and appliance repairs. He expects this to drop fifty per cent and sets the goal for the repair department at $20,000, on which he will spend no advertising for the reason that in all the advertising there will be at least one line which promotes the business of the repair shop.

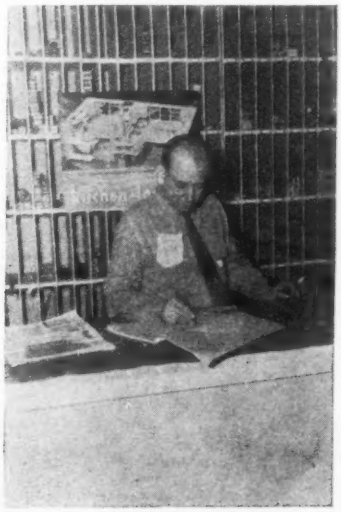
In any business there are two departments to the operation—the "take in" and the "pay out."

Already the skeptics are saying but what about expenses and overhead and salaries and commissions.

Mr. Robertson wants for himself a reasonable salary which he collects under management and which amounts to 5 per cent of the gross. He wants 8 per cent on the gross net profit. That and no more.

So he set himself up a chart dealing with the per cent that can be paid out which was translated into dollars and cents on the basis of his estimated sales. Since it is of no value to any other business except for the per cent allocated to each phase of the operation, we deal here with the allocations.

(Continued on page 30)



At left, Al Robertson demonstrates a refrigerator to returned war veteran. Above, Mr. Robertson works on his "1946 Planned Sales Program."

Mr. Robertson has fostered many merchandinsing innovations. One of them was the display of a refrigerator and a washer under an outdoor canopy. Thousands of people who would not have come into the store examined this outdoor display andn many became prospects.

POTENTIAL BUSINESS IN LAMPS REVEALED IN FARM SURVEY

By Lawrence C. Porter* and Janet E. Davenport*

WITH INCREASING diversification of crops, more widespread use of scientific methods, and increased prices on all farm produce, the southern farmer faces a period of greater prosperity and more comfortable living.

The rural electrification program has brought to farm families throughout the country new leisure along with greater use of the many appliances and machines that save labor and serve convenience. Yet the farm homes of America are still far from being fully electrified. There are now 2,557,247 farms in the United States that are connected to electric power lines. It is estimated that approximately 2,000,000 farms will be newly electrified in the first five years following the end of the war. An additional 2,780,207 farm dwellings are within one-quarter of a mile of existing distribution lines that are not yet connected.

With more than 4,000,000 additional rural homes to be brought within reach of electric lines within a not too distant future, everyone in the electrical industry might well re-examine this new opportunity for sales and service. The farm family can be sold every type of electrical appliance used by his city neighbors, and in addition, many other appliances and machines that facilitate the tasks peculiar to the farming, live stock and poultry industries.

When those who live in the country think of the benefits that electrification will bring, the farmer considers labor saving devices for barn and outbuildings, and his wife and daughters picture electrical conveniences that will ease the burdens of housekeeping; but every member of the family looks forward to better lighting. Whatever household appliances and small motors may be bought with the coming of electric power to the farm, first and foremost in the mind of every member of the family is the fact that at last they will enjoy more comfortable and more modern lighting.

The farm market is different from the industrial, commercial and residential lighting markets. The farmer has waited patiently for the arrival of the hi-line. At last, if not in actual sight, it is near enough to millions of homes so that farm residents can begin to plan on the many new comforts and conveniences they will enjoy when the power line is completed.

Southern business men are closer to their rural customers, perhaps, than merchants in some other sections of the country. The fine old traditions of southern country life, and modern social customs bring residents of town and county into a more intimate understanding of each other at work and play. The southern electrical dealer need not be advised to cultivate the business of his out-of-town friends and neighbors.

Farm Income High

Southern electrical men also realize that farm income during the late war years has been higher than ever before. They realize that many farm customers will want to buy a complete lighting installation, with the most modern type of lamps and luminaires.

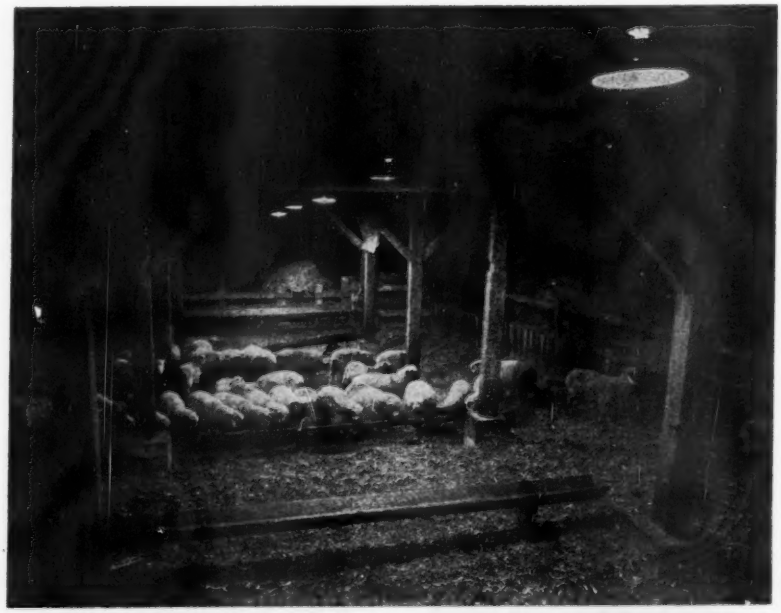
Naturally, the man who is building a new home becomes a big customer for the electrical dealer. But the farmer who is installing a complete lighting system appears likely to prove even a better one. The new home builder frequently has to decide between competing conveniences. When his building budget is overstretched, wiring or lighting may suffer a cut in favor of other facilities that appear at the time more attractive.

When the hi-line comes through, the average farmer should be a preferred prospect for the electrical equipment salesman, and many farm customers can be sold a completely engineered lighting job. In addition to what is necessary for a modern lighting installation in the farmhouse, extra wiring, equipment and motors will be needed in the barnyard and outbuildings.

"Just how many lamps can the average farmer be expected to buy?" is a question that supply salesmen may ask. A satisfactory figure can be arrived at from the number now in use on the average electrified farm. For a number of years, lighting experts have accepted a total of 30 filament lamps as a representative figure. In arriving at this figure, however, no account was taken of lamps used on equipment and in outbuildings.

A recent survey has been made by the *Farm Journal* to arrive at a more satisfactory picture of the number and

*Both of the authors are associated with the Nela Park Engineering Division, General Electric Lamp Department, Cleveland, Ohio.



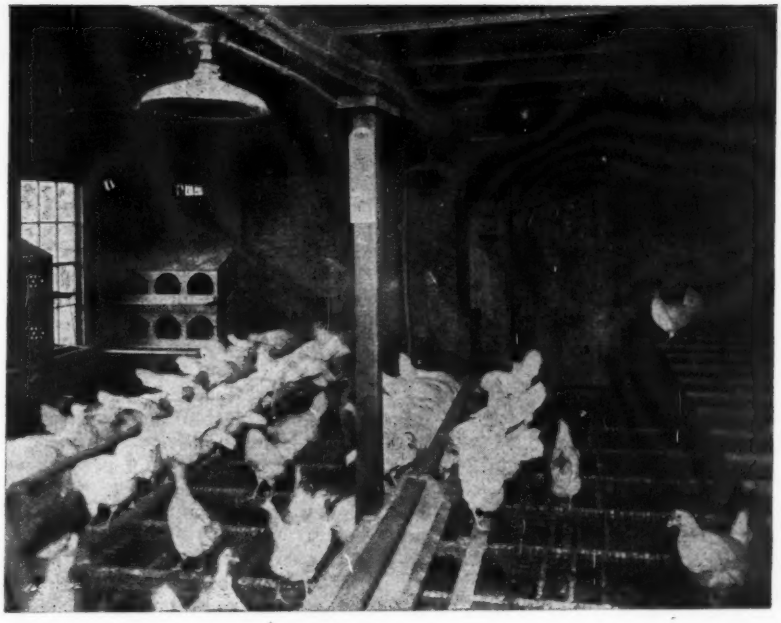
In the sheep barn, too, good lighting facilitates every chore, saves time and labor. A recent national farm paper survey establishes 44 lamps per farm national average for farmhouse, barnyard, outbuildings, and on farm equipment.

location of lamps now in use on the electrified farms of the United States. Since this study included every section of the country, the replies from all 48 states provide a representative cross section of the farm lighting potential. It shows that an average of 44 lamps are in use on the average farm today, this figure being exclusive of those on trucks and automobiles.

This average of 44 lamps per farm were used as follows: in the farmhouse, 18.6 lamps; in or on equipment in the farmhouse, 14.5 lamps; in outbuildings, 7.7 lamps; and in or on equipment outside house, 3.2 lamps.

It may be of interest and value to southern electrical men to note features of this survey not indicated in the above figures. The national average of lamps in use per farm would have been raised to 51.2, had those used on cars and trucks been included. Over 250 lamps were reported from several farms, and three had as few as four. Of the 32,717 lamps that this survey reported in use on 743 farms, 75.2 per cent were used inside the house, and 28.8 per cent were used outside. Of the total lamps used inside 43.7 per cent were on appliances and 29.7 per cent were on equipment. For general lighting 26.3 lamps were used, and on equipment 17.7 were in service on the average farm.

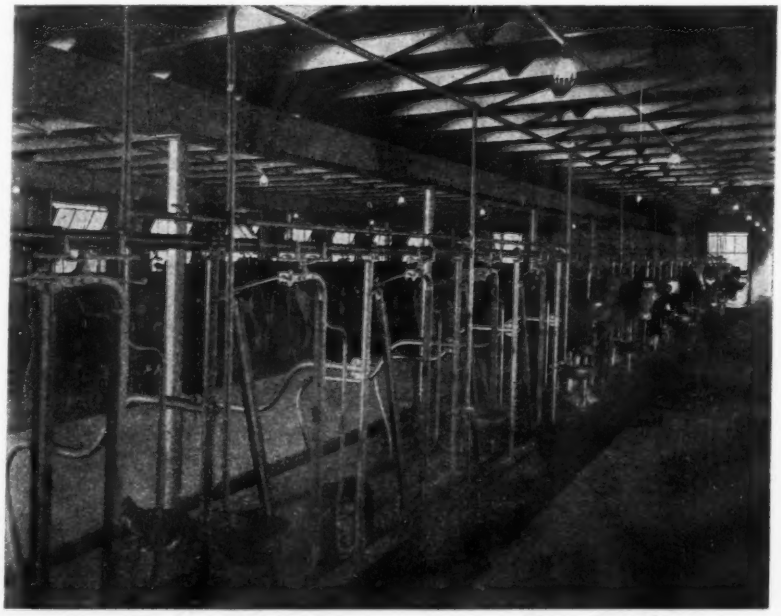
The job of increasing the number of these special purpose lamps on the farms in his territory will offer the lighting equipment dealer an attractive opportunity for greater sales.



As they plan for the benefits that rural electrification can bring, the farmer considers labor-saving devices for barn and outbuildings, his wife and daughter picture electrical conveniences that will ease the burden of housekeeping, but every member of the family looks forward to better lighting for both farm tasks and comfortable seeing in the home. In poultry houses good lighting extends the layers' working day.

Questionnaires returned in the farm journal survey listed 1022 lamps in radios, 955 in flashlights, 6560 Christmas tree lamps, and 833 on inside equipment not listed on the return forms. Outside of the home, 935 flood and spotlights were reported, 701 lamps on tractors, 108 in electric hand lanterns, and 524 in various other equipment such as lighted hotbeds, brooders and electric fences.

Southern electrical contractors, dealers and salesmen will see in the lighting of the farms in their territory a sales opportunity similar to the job of lighting new urban homes. The farm installation may be even larger in potential, however, because of the inclusion of the many-purpose lamps needed outside the home on equipment, and for illumination in yard and outbuildings. The table (Pg. 30) gives minimum and maximum special purpose lamps and their location as reported in this survey.



Southern electrical dealers will see in the lighting of farms a sales opportunity even larger than the job of lighting new urban homes, because of the inclusion of many lamps needed outside the home, as those shown here in a cow barn.

Fluorescents on Farms

"What about fluorescent on farms?" many lighting men will ask. This study indicates that farmers, just as many retail merchants who are planning to relight, are already using this new light source. Despite the fact that those farms on which fluorescent is already in use were equipped when supplies were limited, or when this new light source was in the initial stage of commercial development, almost one out of five, exactly 19.2 per cent, of the farms reporting had one or more fluorescent lamps, one farm reporting the use of seven.

All southern wholesalers and the large majority of lighting equipment

Equipment Lamps, Inside Farmhouse

Equipment	Max.	Min.
Clock	4	1
Radio	7	1
Range	11	1
Refrigerator	3	1
Vacuum cleaner	2	1
Picture projector	6	1
Lighted toys	12	1
Infrared lamps	4	1
Sunlamps	6	1
Flashlights	7	1
Christmas tree lamps	100	6
All other equipment	50	1

Equipment Lamps, Outside Farmhouse

Equipment	Max.	Min.
Yard flood & spot lights	100	1
Infrared lamps	4	1
Sunlamps	3	1
Germicidal lamp	6	1
Tractors	9	1
Bicycles	5	1
Handlanterns	6	1
All other equipment	40	1

dealers will directly profit in the extension of rural electrification. On many farms, sunlamps, germicidal, infrared, projector lamps and spotlights will find special uses in the general farm tasks as well as in poultry culture and animal husbandry. These special lamps will also facilitate the health and contribute to more comfortable living for every member of the farm family.

Equipment for general lighting and special service lamps are but a part of the electrical business in sight as a result of the tremendous rural electrification program ahead. Authoritative estimates foresee the building of 1,750,000 miles of new power lines, a wiring cost of $500,000,000 and the outlay of almost $1,000,000,000 for farm and home electrical equipment.

The size of available figures strikingly illustrates the magnitude of the profit opportunities in this program for the electrical industry.

Charting the Future In Appliance Sales

(Continued from page 27)

He projects his total gross profit as 35.2 per cent, a figure made up of an estimated margin on sales of 33.3 per cent plus labor service cost and parts estimated at 1.9 per cent. These two figures when added give us a gross profit of 35.2 which is the amount we have to spend—from this comes everything.

Office salary gets 1.2; sales expense (commission) gets 9; management gets 5; rent and heat gets 1, and light, power, and telephone gets 0.2 per cent.

He included everything, including trade magazines. He lists office supplies, trade magazines, and books to get 0.5 per cent.

All of these items that are to be taken out of the gross amount to 27.3 per cent. He subtracts this from 35.2 per cent and finds he has 7.9 per cent, apparently 1-10th of one per cent short of his goal, but he has made another profit. An interest discount of 1.5 per cent has been earned for the year on the floor plan and such and this gives a net of 9.4 per cent.

Well, Mr. Robertson said he didn't want but 8 per cent and that was all he was going to have.

So this overage of 1.4 per cent is to be distributed among the employees just before Christmas as a bonus.

So-o-o-o if the gross is $200,000 and it should be, then the employees will get 1.4 per cent, or $2,800.00 to be divided among the employees.

What to pay the salesmen?

Salesmen will work for a $20 weekly salary and a commission of 8 per cent. Minimum sales will be $500 weekly, which will make commission and salary net the salesmen $60 weekly.

This, Mr. Robertson says, is strictly a minimum. He wants $100-a-week men.

A leading sewing machine manufacturer selling direct to the consumer for 40 years has changed from commission selling to a straight salary. This has resulted in many of his best salesmen seeking a commission job because they can't get as much salary as they made in commissions. Mr. Robertson has already hired three top-notchers.

Mr. Robertson says this setup can be used by any one who contemplates starting up in the appliance business.

He has made a personal survey which indicates that it takes 3,000 families to keep one man in business.

A GI came to him the other day and asked his advice about going into the electric appliance business in a town of 12,000.

He asked how many appliance dealers were in that town and was told there were six.

With six dealers already in the field of 12,000 that leaves only 2,000 families to support each dealer, and the new dealer or the seventh would have to get his out of an already overcrowded field.

He advised the soldier to use the same formula and go where the chances would be better.

Now there are some crowded areas where there are only 500 families to each dealer, according to Mr. Robertson.

Mr. Robertson started his business in Oklahoma City in 1932 in a building 9 by 12 feet, for which he paid $15 per month rent.

A second store was opened during the war and plans made for a complete and modern appliance store.

Throughout his business career he has fostered innovations. One of them was display of a refrigerator and a washing machine under an outdoor canopy.

Thousands of persons who would not enter the store looked at the outdoor display and many of them became prospects and eventually purchasers.

The reason they will look at the outdoor display before coming into the store, Mr. Robertson said, is that when a person turns the knob and opens the door he has unconsciously placed himself under obligation.

When he is outside under the summer sun and the blue sky, he does not have that sense of being under a slight obligation or disadvantage. He consequently has the feeling that he can be completely unbiased toward the merchandise and can look, purchase, or knock freely and at will.

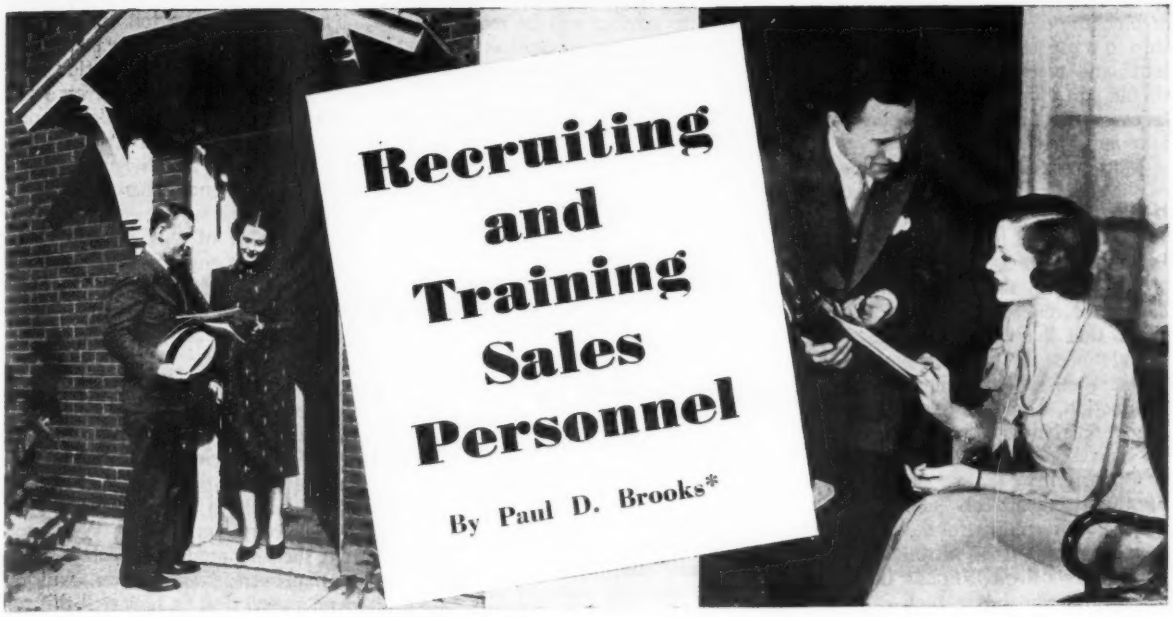
First refrigerators to come in have already been displayed to a crowd under the canopy.

Another innovation is the practice of furnishing small items to customers free of charge. Fuses, receptacle plugs, handles on irons and percolators are tightened loose connections repairs—all for free.

A policy of one-day service on radio repair and radios repaired while the customer waits and watches has been a stimulator of the large volume of repair business.

As to the projected business figures, Mr. Robertson said:

"Maybe we'll sell more and maybe we'll sell less. We've got a mark to shoot at and a hill to take, and we're not going to stop for water when we are but half-way up the hill."



Recruiting and Training Sales Personnel

By Paul D. Brooks*

RECRUITING and training of sales personnel is probably one of the most important problems facing utility sales management. This problem is complicated by the fact that young men are not interested in becoming salesmen. A recent survey of high school seniors shows that 95% of them do not want to take up salesmanship as a career.

In one eastern university which has always had excellent courses in salesmanship, less than 2% of the students indicated an interest in selling.

At the New York City Veterans Center only 14 out of 10,000 men signed up to become salesmen.

A survey conducted in its own factory by a large manufacturer of gas appliances shows that less than 1/3 of its former salesmen who during the war went to work in the factory will go back to selling.

Many returning service men want to use the training they received while in the Armed Services. Others feel that selling does not give them job security. The consensus of one group of students who were surveyed is that selling is a "racket." This also seems to be the viewpoint of many members of the faculties of our educational institutions and other groups molding the opinions of young men.

Fortunately, this is not the opinion of those who know salesmanship and what it has done and can do in raising the standard of living of the people of this country.

The time is too short for us to begin an industry-wide program to sell salesmanship to the public. It would take considerable time to get such a program under way. So it would seem that the present job of changing the minds of the young men whom we would like to employ as salesmen is up to each individual sales manager.

It is estimated that during the next five years American industry will need 1,000,000 more salesmen than it employed in the peak prewar year. This figure includes retail, specialty, and all kinds of salesmen.

During the war, light and power companies like all other business organizations, lost the greater part of their sales personnel. They are in competition with all other businesses and industries for good salesmen. If the estimate just given is correct, and there is every indication that it is reasonable, then our problem of meeting our competition for good salesmen is a real one indeed.

Recruiting Salesmen

The purpose of this article is: (1) To offer some suggestions as to how this competition may be met, and (2) How high grade permanent utility sales organizations might be built.

The objective of a recruitment program is, of course, to bring to the person in the company responsible for selecting new employes, a sufficient number of candidates to permit the selection of qualified persons.

Experience in selecting salesmen for other lines of selling has proved that from 4 to 6 applicants or prospects for a sales job are required in order to select just one good one for further examination. Of course, when the need for salesmen is great and the supply is small, we doubtless would accept men we wouldn't hire when the opposite was the case.

It therefore seems that an organized written plan for recruitment must be established if the desired results are to be obtained. While the problem of recruitment is acute at this time, it is a problem that is always with us.

The recruitment program should be continuous and so well organized that action at any time it is needed will be speedy and smooth. Responsibility for recruiting new salesmen should be definitely placed in one person and the procedure for interviewing and selecting new personnel firmly established.

Of course, help in finding recruits will be needed from every member of the sales department and from every other source within as well as outside of the company where such help can be given.

A complete plan or program would, of course, include short and long-term objectives, a record system showing sources for obtaining recruits and methods which are most effective in securing them.

Pamphlet or Brochure Helpful

As a first step in the recruiting of sales personnel, it might be well to consider the preparation of a pamphlet

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***Mr. Brooks is chief of sales staff for Ebasco Services Incorporated, New York, N. Y. This article is based on address before the Sales Section of the Southeastern Electric Exchange, in Atlanta.**

or brochure designed to sell salesmanship to prospective salesmen. The contents and make-up of this pamphlet should stress and dramatize the advantages to the prospect of becoming a salesman for the company.

Without attempting to outline all of the subjects that might be covered, it should be remembered that the strongest appeal for the job of selling is compensation. Salesmen generally are better paid than most workers. A survey of one well known agency shows that the average annual salaries of salesmen are from 12% to 35% higher than those of men engaged in Production, Engineering and Accounting work in all age groups from 20 to 49 years.

Opportunity for advancement is another strong appeal. Many examples of the opportunity for advancement can be given in the histories of men now in executive positions with utility companies who began their careers as salesmen.

Still another is that a good salesman is seldom out of work. His services are in demand during both good and bad times.

There are a great many other advantages to the man who is qualified and who will seriously engage in selling utility services as a career. These include creative work, broadening of vission, building of self-confidence and valuable acquaintanceships. Then there are the benefits which the company offers to all employes: group insurance, old age pensions, physical examinations, vacations, pleasant working conditions, etc., aside from the satisfaction that comes from improving the standards of living or more profitable operations of the customers to whom he sells utility services.

How to Get Started

A short campaign to begin the recruitment program without doubt would result in securing a number of potentially good salesmen. But there is reason to believe that the needs for good salesmen would be far from satisfied by this method. Continuous effort is the only answer to completing a sales organization with qualified personnel.

To accomplish the ultimate objective through continuous effort will take time. It will also test the sales ability of those who are responsible for the job. Recruits will have to be found. They will have to be sold on applying for the job. It will require the skill, patience and persistence of sales management and first class salesmanship. All of the sales techniques which have proved successful in selling utility services will be required if satisfactory results are achieved.

Sources of Salesmen

The source holding greatest possibilities for good recruits is, of course, the returning service men. Close, harmonious contacts with organizations where ex-servicemen are most likely to go in quest of a job will be helpful. These include U. S. Veteran's Employment Bureau, American Legion Posts, Veterans of Foreign Wars, and any new veterans' organizations that may develop.

Those companies which have kept in close touch with their former salesmen while in the service have the best chance to re-employ them. A report just released by the Opinion Research Corporation entitled, "The Veteran and His Job," shows that 75% of those mustered out so far held jobs just before entering the service. But the majority are not going back to their old jobs. Only 34% of all veterans who held jobs before have gone back with their old employers. However, 49% of men who received something from their employers while in the service went back to work for their old employers.

Other sources of recruitment which can be worked with fair results are:

Employment Agencies.

Advertising Agencies.

Placement Bureaus of Schools and Colleges.

Personnel Managers of Companies in other local industries.

Members of the Clergy, Doctors, Heads of Fraternal and Social Organizations.

When it is considered that there will be many thousands of men returning from the service who never have worked in the business field, many of our sales forces might be built up from this group.

Yet the source which may prove to be the best of all when results are measured in the quality of salesmen that will stay with the company is that represented by other businesses, clerks in stores, milk men, laundry men, door-to-door salesmen, cashiers, and others who deal with the public all day long and whose work in a very real sense is selling. However, not many technically trained men for some commercial and industrial jobs will be found among these men.

By training the company's own salesmen, division and district managers, supervisors and other key men to recognize those with whom they deal or otherwise come in contact having unusual sales ability, many prospective top-notch salesmen can be obtained.

The scientific selection of salesmen is a phase of sales management that deserves probably more attention than is being given to it. However, some of the large industries which during normal times employ a large number of salesmen and which have long established personnel departments, have advanced a long way toward determining the value of this science. It is doubtful that any of these large organizations would give up the program they have begun, some of which include the use of aptitude testing.

Selection of Salesmen

There is pretty general agreement on the value of several well established steps in the selection program. For example, we know that a person must train himself to become an expert at interviewing applicants. We know that the end product, which is a better-than-average sales force, will depend a great deal on how well this person functions. Then we know that our public relations can be damaged if scores of applicants for jobs leave our place of business with the feeling that they haven't had a square deal. So the number one step in the selection program is to assign responsibility to a qualified person and then help him to train himself thoroughly for his job.

The important thing for this man, as well as all others who are responsible for selecting salesmen, to keep in mind is that scientific selection is not a substitute for experience and judgment. Its purpose is to furnish helpful information to aid in the exercise of experience and judgment.

The man or men who are endowed with these two commendable human attributes will, of course, have cleared their minds of any prejudices they at one time may have held. Such men will not pass up a good prospective salesman because he is too short or too tall, because he wears a mustache, or because he is not of his own faith or nationality.

Job Specifications

The character of jobs to be filled in the average electric utility sales department are many and varied. These include residential, commercial, industrial and perhaps government and municipal, as well as sales promotion and advertising. It is important, therefore, that the interviewer have at hand a complete job specification for each of the jobs to be filled.

The principal requirements of a job specification for each class of sales job can be covered under the following headings:

(Continued on page 92)

ELECTRICAL SOUTH
NEWS BRIEFS of the INDUSTRY

4-Day Program Planned For Lighting Exposition

THE INTERNATIONAL Lighting Exposition to convene in Chicago's Stevens Hotel next April 26, will focus the nation's attention on the need for a fuller and more enlightened use of lighting in industry, business, stores, farm, home, schools, etc.

Through a series of four morning conferences, the Exposition Committee will seek to make better known the practical applications of the newest developments in illumination. Tickets to the conferences are available to architects, electrical contractors, wholesalers, industrial executives, illumination engineers, school men, business men, public officials, utility personnel, railroad officials, oil company executives, and all other industrial and commercial officials concerned with lighting.

The conference program, as announced, is as follows: Friday, April 26: 9:30 to 12:30 – "New Lighting Trends and Methods;" Saturday, April 27: 9:30 to 12:30 – "Lighting Sales Forums for Electrical Contractors;" Monday, April 29: 9:30 to 12:30 – "Industrial Conference on Lighting Service and Lighting Sales Training; Tuesday, April 30: 9:30 to 12:30 – "Lighting Application Forum."

Each conference session will feature men who are recognized as outstanding in their subject. These conference sessions will afford opportunity for round table discussions and forums on practically all subjects related to the application, utilization, and sale of lighting equipment. To the store owner, service station operator, and dealer, it will afford opportunity to learn how to better use light to increase sales; to the industrial executive, to increase production, reduce accidents, and conserve eyesight; to the school executive, the improved use of latest lighting techniques to improve educational results and conserve the nation's eyesight; to the electrical contractor and utility man, the new ideas in the technique of more effective presentation of the newest developments in lighting and their value to the customer

Over 60 leading lamp, lighting equipment, and manufacturers of paint and other products which are directly related to illumination will display their products.

Court Holds Co-ops Are Public Utilities

THE Ark.-La. Electric Co-operative is a public utility subject to regulatory provisions of Act. No. 342 of 1937, Circuit Judge Auten held in a ruling affirming findings of the old Arkansas Public Utilities Commission recently.

The former commission, in an order of December 14, 1944, held inapplicable a clause of Act. No. 342 exempting rural co-operatives from certain provisions and directed the co-operative involved to comply with terms of the act.

The complaint was filed with the commission in behalf of four private utilities, Arkansas - Missouri Power Corporation, Southwest Gas and Electric Company, Arkansas Power and Light Company and Oklahoma Gas and Electric Company. Petition for review of the commission's order was filed in Circuit Court.

In 1942, Ark.-La. Electric Co-operative received authority to construct and operate electric transmission lines from the site of the Jones Mill aluminum plant on Lake Catherine, northwest to the Oklahoma-Arkansas state line north of Fort Smith. The transmission line crossed areas served by Oklahoma Gas and Electric Company and the Arkansas Power and Light Company.

FORTY YEARS OF PROGRESS—All three of the above Westinghouse motors are rated at ¼ horsepower. The "big difference" is that the one on the right was designed in 1904 while the other two are the latest models produced. C. C. Shutt and William Boden are examining the 1904 model. At the left is a high speed ¼ h.p. aircraft motor. The other '45 model is a general purpose motor used in such things as oil burners, office appliances, fan blowers, washing machines and workshops.

The four utilities charged the co-operative with operating as a public utility without complying with provisions of Act. No. 324, from which the co-op contended it was legally exempt. Oral arguments before Judge Auten disclosed that Ark.-La. had contracted to serve five co-operatives in Arkansas.

Electron Device To Aid Research

SCORING another "first in the South," the State Engineering Experiment Station at the Georgia School of Technology, Atlanta, has announced the installation of a $13,000 electron microscope, one of the most important scientific tools developed in the last ten years.

"This instrument," according to Dr. Gerald A. Rosselot, director of the Experiment Station, "will enable us to obtain much basic information on many problems in the fields of medicine, biology, bacteriology, agriculture, metallurgy, textile fibers, and ceramics. It will admirably complement the other equipment with which the Experiment Station is investigating problems of importance to Georgia and the South, and will be used in co-operative research with other colleges and universities of this area."

The electron microscope is an instrument which has astonished those scientists who predicted that the power of the optical microscope would never be exceeded. The apparatus at Georgia Tech can magnify images as much as 20,000 times, compared with about 3,000 times for the optical type.

Even more important is the fact that photographic enlargements reveal many new details even at magnifications as high as 100,000 times, whereas enlargements of optical photomicrographs show comparatively few new details, because of the instrument's much inferior resolution of the image.

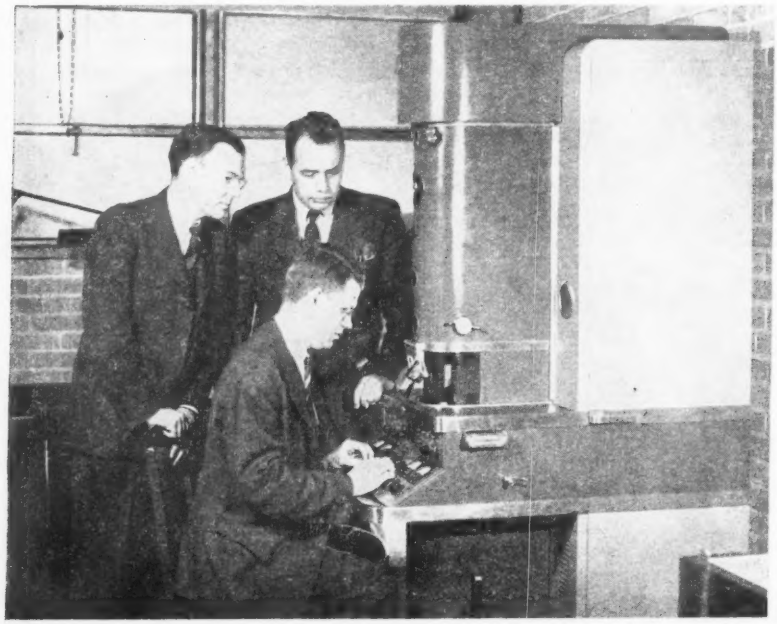
In principle, Georgia Tech's new electron microscope is much like the visual instrument. However, electrons instead of light beams are fired from a "gun" at the top of the instrument and are focused with adjustable magnets instead of glass lenses.

Appliances Delayed As Workmen Strike

As this issue goes to press, the United Electrical Workers – CIO union – is still on strike in the plants of the General Electric Company, the Westinghouse Electric Corporation, and the Electrical Division of General Motors. As a result of the strike, appliance delivery dates from these firms have been pushed into the unpredictable future.

At the General Electric plants, it was reported that the strikes had halted production on refrigerators, washers, irons, automatic blankets, Disposalls, dishwashers, portable heaters, toasters, coffee makers, roasters and fans.

Spokesman for one company reported that even when the strike is over, it will take some time to re-establish sources of supply of materials and parts and start up the production lines.



Viewing formerly invisible objects on Georgia Tech's new electron microscope, in Atlanta, are Dr. Gerald A. Rosselot, standing at the right, director of the State Engineering Experiment Station; B. H. Weil, head of the Station's Technical Information Division; and R. W. Koza, seated, faculty research associate who is in charge of the instrument and its use.

DATES AHEAD

National

Edison Electric Institute, Transmission and Distribution Committee, Netherland Plaza Hotel, Cincinnati, Ohio. February 18-19, 1946.

Edison Electric Institute, Electrical Equipment Committee, Netherland Plaza Hotel, Cincinnati, Ohio. February 20-21, 1946.

National Rural Electric Cooperative Association, Annual Meeting, Buffalo, N. Y. March 4-6, 1946.

Edison Electric Institute, General Sales Conference, Edgewater Beach Hotel, Chicago, Ill. April 2-4, 1946.

National Electrical Manufacturers Association, Spring Meeting, Palmer House, Chicago, Ill. Week of April 8, 1946.

National Electrical Wholesalers Association, Annual Convention, Stevens Hotel, Chicago, Ill. April 21-25, 1946.

International Lighting Exposition and Conference, Stevens Hotel, Chicago, Ill. April 25-30, 1946.

American Institute of Electrical Engineers, Summer Convention, Detroit, Mich. June 24-28, 1946.

National Electrical Manufacturers Association, Annual Meeting, Marlboro-Blenheim and Claridge Hotels, Atlantic City, N. J. Week of October 28, 1946.

Southern

Missouri Valley Electric Association, Power Sales Conference, Hotel Continental, Kansas City, Mo. February 13-14, 1946.

Oklahoma Utilities Association, Annual Convention, Biltmore Hotel, Oklahoma City, Okla. March 11-12, 1946.

Southeastern Electric Exchange, Engineering and Operations Section, Tutwiler Hotel, Birmingham, Ala. March 14-15, 1946.

Electrochemical Society, Spring Meeting, Tutwiler Hotel, Birmingham, Ala. April 10-13, 1946.

American Institute of Electrical Engineers, Southwest District Meeting, San Antonio, Texas. April 16-18, 1946.

Southeastern Electric Exchange, Annual Conference, Edgewater Gulf Hotel, Edgewater Park, Miss. April 24-26, 1946.

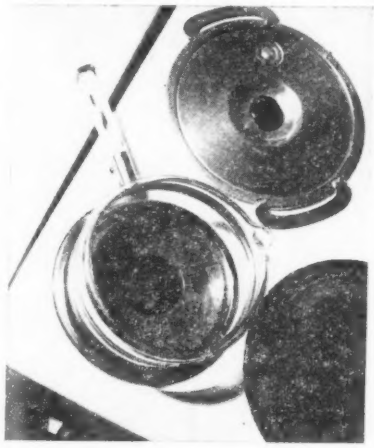
American Institute of Electrical Engineers, Southern District Meeting, Asheville, N. C. May 14-16, 1946.

Range Offers Automatic Surface Cooking Control

A NEW revolutionary type of automatic electric range surface cooking unit developed by Proctor research engineers under the direction of Joseph W. Myers, vice-president in charge of research, was recently announced by Proctor Electric Company, of Philadelphia.

This new development makes electric range cooking competitive in heating speed with that of gas ranges, and successfully applies automatic temperature control to top-of-the-stove cooking.

The heating coil of the Proctor automatic electric range unit is embedded in a heat conductive cement which is fired to an extreme amount



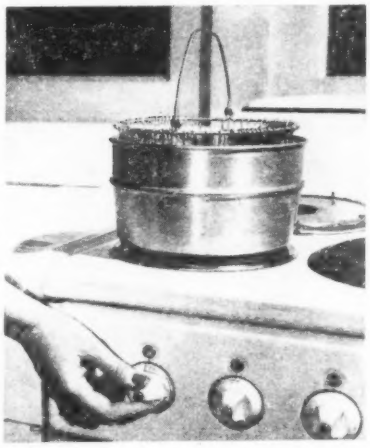
The thermostat for the new Proctor surface heating unit for electric ranges (black disc in center of unit) is shown through glass cooking vessel.

of hardness and durability. It is stone-like in its construction, can never corrode or warp, and is practically indestructible. Under extreme changes in temperature, the coil will not split or crack, the manufacturer reports. It is as easy to clean as the rest of the range and can be easily wiped off with a damp cloth.

Two major features of the new type range surface cooking unit are that it is built for speed and has heat control.

A push on the Proctor supercharger overenergizes the element with four times as much wattage as it would ordinarily have, and within 35 to 40 seconds, the unit reaches its peak temperature. There is no delay in cooking.

For heat control, a thermostat placed in the center and springing above the unit maintains the proper heat for all types of cooking from a high heat for French-fried potatoes to a warming heat for keeping foods hot.



This new surface heating unit for electric ranges has a supercharger that will bring the heat to peak cooking temperatures in a fraction of a minute and a thermostat that will maintain the temperature needed.

This thermostat makes contact with the bottom of the cooking vessel and turns the burner off and on as may be necessary to maintain the food in the vessel at a pre-selected cooking rate or temperature. It maintains the following cooking temperatures: tepid warm, simmer, slow economy boil, hard boil, any desired frying range from high (French-fried potatoes) to low (frying eggs).

The advantages of this heat control are that it keeps food warm without burning it or the cooking utensil; turns itself off and no current will flow into the heating unit should saucepan boil dry, with no damage resulting to pan or unit if this should happen; automatically turns itself down when heat approaches cooking temperature selected—thus saving electrical current consumption; clicks back to normal heat when peak has been reached by supercharger, thus saving current consumption without impairing cooking efficiency; and makes contact with either old or new saucepans because it can adjust itself to a dented or uneven surface.

More News On Page 72

F. J. Gannon **M. R. McKinley**

Gannon President Of Tampa Electric

ELECTED unanimously to the presidency of the Tampa Electric Company, Tampa, Florida, in January, Francis J. Gannon, who has served as vice-president and general manager since 1931, will succeed Colonel Peter O. Knight, who retires after 53 years of continuous service. At the same time Malcolm R. McKinley, the company's general superintendent since 1928, was named vice-president.

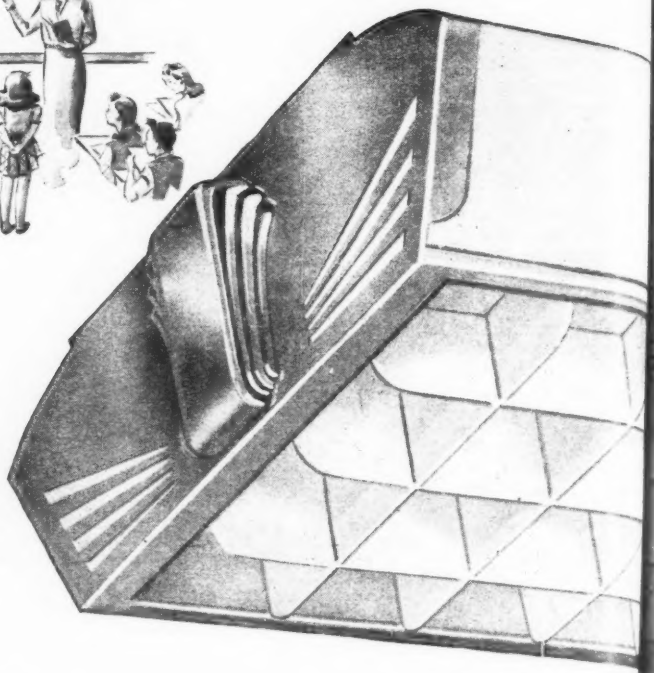
Mr. Knight was the organizer of the Tampa Electric Co. Through him Tampa was the first city in Florida to have electric street cars and among the first cities in the United States to have them. Throughout the years he has gained distinction for his company by continuously maintaining the five-cent street car fare, one of the very few companies in the United States that has such a low fare today.

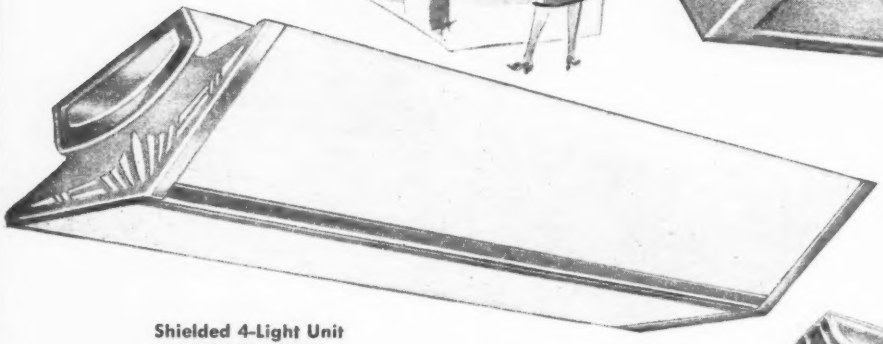
Mr. Gannon has had a long and active career in the utility business, having started out at the age of 15 as a messenger in the office of Stone and Webster, in Boston. After he left Boston, he went to the Dallas Power and Light Company as a bookkeeper and two years later was named assistant treasurer of the Pawtucket Electric Company, Pawtucket, Rhode Island.

In 1910 he was named assistant treasurer of the Edison Illuminating Company of Brockton, Massachusetts From there he went to the Sierra Pacific Power Company of Reno, Nevada, and in 1916 to the Northern Texas Traction Company, at Fort Worth.

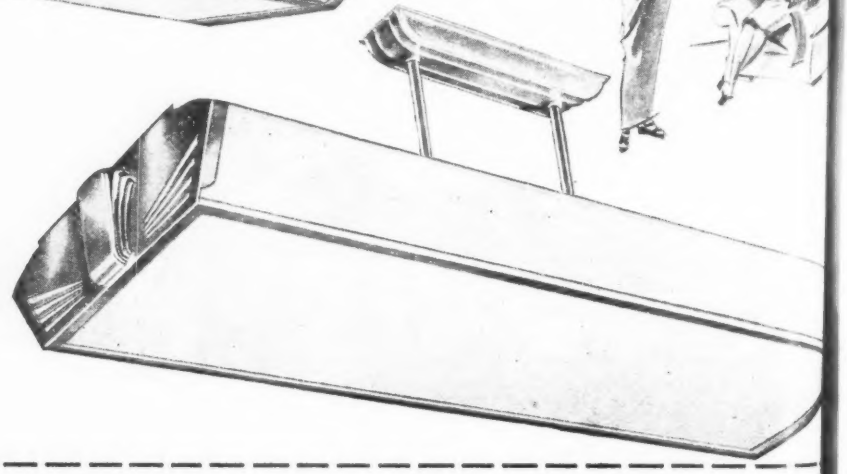
Mr. Gannon came to Tampa the first time in 1926 as vice-president and treasurer of Davis Island, Inc. He then was called to the presidency of the El Paso Electric Company, in El Paso, Texas. He return to Tampa in 1931 as vice-president and general manager of Tampa Electric Company.

MITCHELL INTRODUCE

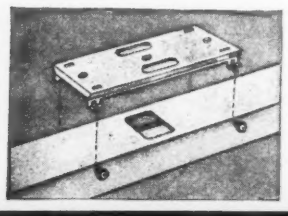




Shielded 4-Light Unit
Model No. 3004
(2-Light Model No. 3003)



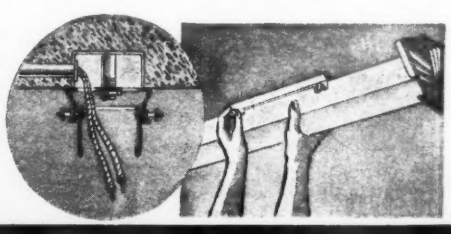
Deluxe Shielded 4-Light
Model No. 3007
(2-Light Model No. 3005)



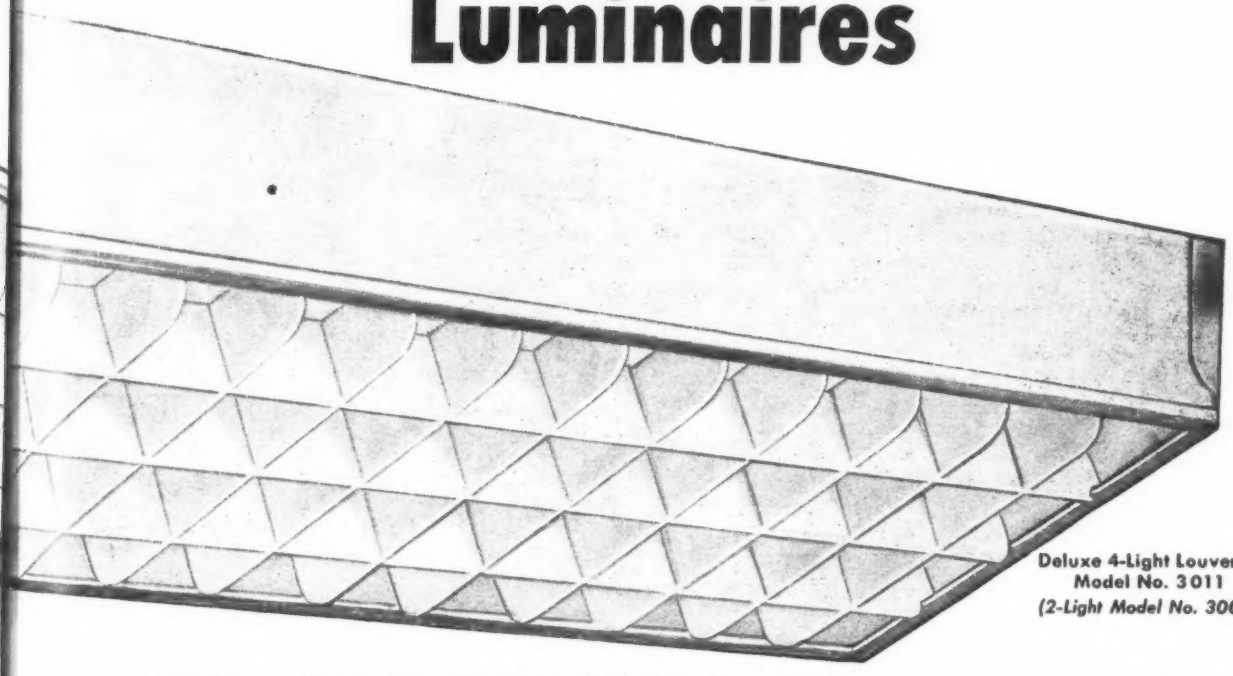
ONE-MAN QUICK-MOUNT

Permits one man to install a 2-light or 4-light fixture in less than half the normal time. Ceiling Plate is mounted to ceiling. Wireway Channel is raised to Ceiling Plate and securely fastened with 4 Captive Knurled Nuts.

Cross-Section shows house wires drawn through Ceiling Plate and Channel. Note open construction for convenient inspection. Wireway Channel secured into position for quick splicing of house wires to fixture wires.



ENTIRELY NEW AND COMPLETE LINE OF
Commercial Fluorescent Luminaires



Deluxe 4-Light Louvered
Model No. 3011
(2-Light Model No. 3009)

Setting a New Standard in Lighting Service!

Offering Exciting New Modern Designs in 2-Light and 4-Light Units . . . Glass-Shielded, Louvered and Open Types • Instant Start • New Patented "One-Man Quick-Mount"!

New opportunities for sales and profits . . . *greater than you've ever known* . . . are open to you now! For MITCHELL ingenuity brings you modern Luminaires to answer every demand for soft, glare-free lighting in stores, offices, schools, public buildings! In this new complete line, you get *a dozen and more vital advantages* that enable you to provide the *finest lighting performance on the market!* Installation is simpler than ever. Maintenance is made easier for servicing economy. Values are exceptional because each unit does a big job for the money.

Add to all this the great record and nation-wide acceptance achieved by MITCHELL products through the years . . . and you have the *strongest selling line today!* Build a big commercial lighting business. Get volume sales and volume profits. Sell MITCHELL Luminaires in 1946!

Get New Catalog No. 285

Use this powerful sales aid. Illustrates and describes complete line of Commercial Luminaires. Includes helpful lighting data, installation and servicing information! Write for it now!

ALL THESE FEATURES!

1. Higher Light Output—Less Glare
2. Scientific Shielding
3. Proper Lamp Spacing
4. True, Full-Depth Louvers
5. Luminous End Plates
6. Instant Start
7. Surface or Suspension Mounting
8. Quick, Easy Installation and Servicing
9. One-Man Quick-Mount
10. Fleur-o-Lier, U.L. and E.T.L. Approved
11. Single Carton Packing
12. Mitchell Guarantee

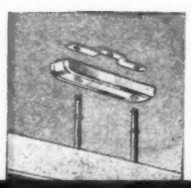
Mitchell Manufacturing Company
2525 CLYBOURN AVENUE, CHICAGO 14, ILLINOIS
West Coast Factory and Sales Office: 1019 N. Madison Ave., Los Angeles 27, Cal.

MITCHELL
FOR TOP LIGHTING VALUE

EASY TO INSTALL AND SERVICE

New, improved heavy-gauge steel wireway channels, with abundant knockouts for mounting and wiring. Wires, sockets, starters, glass panels, louvers, and other components are readily accessible for

Units may be surface mounted direct to ceiling, or suspended by Canopy and Stem Set (extra). Models illustrated above may easily be joined end-to-end



MAKERS OF

Commercial and Industrial Fluorescent Lighting Equipment • Store Window Lighting • Spotlights and Floodlights • Desk Lamps • Portable Floor and Table Lamps • Bed Lamps • Ultraviolet and Infrared Health Lamps • Residential Lighting

Self Service System Pleases New Record Shop Customers

CUSTOMERS at the newly opened New Orleans Record Shop serve themselves just as do grocery-shoppers at the super markets—and they like it. Because his new store features probably the widest platter variety to be found in all the Crescent City, owner Orin Blackstone decided that self service on the lines of food store self service would be more convenient both to customers and to store personnel. This system has worked out in practice amazingly well; the customers take to it like a hungry housewife to a pound of scarce super market bacon.

A New Orleans platter bug who wished to buy a recording of one of the jazz city's oldtime musicians in action might find a job cut out for him if he tried to purchase it at any of the Crescent City's older record stores. But he would find it at the New Orleans record shop, and if it weren't there, Orin Blacksone would order it—even if the ordering took six months to consumate and entailed correspondence reaching to the ceiling.

Mr. Blackstone aims to make the New Orleans Record Shop a success by adherence to one selling principle: complete selections. Selling records and record accessories such as needles, albums, and racks, exclusively, he concentrates his merchandising activities upon furnishing anything and everything from Toscannini to Duke Ellington which might be requested by record collectors.

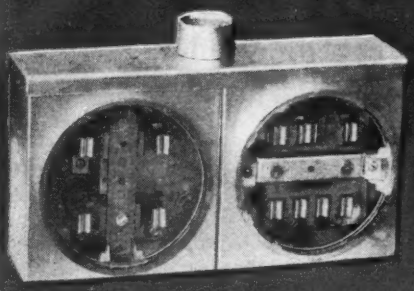
The New Orleans Record Shop opened only last October, but already it is achieving startling early success because New Orleans record hounds are learning that they can find anything they need there. Most record shops stock plates of the big three recorders—Decca, Victor and Columbia — only. Mr. Blackstone stocks records of some forty companies in all, including several extinct outfits, and if anything the customer requests isn't in stock, he will use the store's wide contacts and buying facilities to find it for the platter bug. This service is a strong point for building customer friendship and good will.

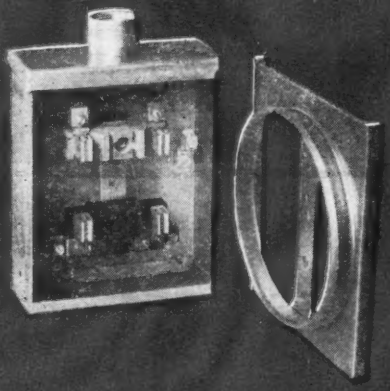
Customer shops in ease, makes selections without the aid of a salesman, in the newly opened New Orleans Record Shop.

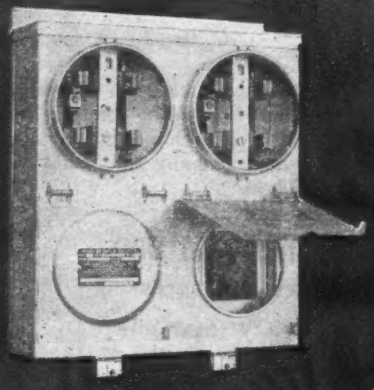
Large Personal Collection

Formerly city editor of the New Orleans *Times-Picayune*, Orin Blackstone "grew" into the record business through his own collecting activities. He admits to owning some "seven to eight thousand records" in his personal collection—but he isn't sure of the exact number.

Since his stock is on a scale comparable to his own collection, it is easy to understand why Mr. Blackstone settled upon self service as a selling gimmick when the New Orleans Record Shop first opened. In practice since then, the super market system has worked with great success; Blackstone finds that his New Orleans customers actually enjoy choosing their own records from the open racks which display Blackstone's complete stock. They carry the platters to listening booths, play until they have decided upon a purchase, and then bring their records to Blackstone for wrapping and for payment.







4 Reasons why WALKER ELECTRICAL Products are in demand

1 *The Walker line of stock items is broad and comprehensive, enabling any contractor or utility to quickly obtain equipment to fulfill their requirements.*

2 *Walker production is set up to enable custom design items at conditions comparable to that of standard equipment saving both in time and money.*

3 *Walker service goes beyond the bounds of sales and delivery... a staff of competent engineers are at your call to assist in planning and developing equipment which will function with the maximum of efficiency and greater economy.*

4 *Walker quality is self evident and substantiated by the repeated business which for years has kept Walker Electrical Company foremost in their field.*

WRITE OR CALL ★

WALKER ELECTRICAL Company Atlanta

WECO ATLANTA

MANUFACTURERS OF SWITCHBOARDS • PANEL BOARDS • SERVICE EQUIPMENT • METAL ENCLOSURES

Customer Returned To First Class Status

THE "customer," so easily pushed into second place during the war years, now again receives the recognition due him. The following idea expresses a code of business sentiment that cannot fail to build goodwill and closer relations between the firm and those who do business with the firm.

This copy would make an effective ad or wall-card for any dealer's office:

"What is a customer?

"A customer is the most important person ever in this institution—in person or by mail.

"A customer is not dependent on us—we are dependent on him.

"A customer is not an interruption of our work—he is the purpose of it. We are not doing him a favor by serving him—he is doing us a favor by giving us the opportunity to do so.

"A customer is not an outsider to our business—he is part of it.

"A customer is not cold statistics—he is a flesh-and-blood human being with feelings and emotions like our own.

"A customer is the person who brings us his wants. It is our job to handle them profitably both to him, or her, and to ourselves.

"Here the customer—that's you—is more important than money. We welcome you. Come in."

Dealer Capitalizes On Good Location

LOCATED on an advantageous site, Roy Wilkerson, 4012 MacArthur Boulevard, Oklahoma City, Okla., has carefully planned means of attracting passers-by to his new electrical appliance department where he will feature complete kitchens, laundries, and refrigeration equipment, and has arranged hours to suit the convenience of these prospective customers.

Mr. Wilkerson is situated several miles from Oklahoma City metropolitan limits in a self-contained shopping area which includes a moving picture theater. He has been located there for several years, operating a large machine shop which was devoted to aircraft parts production during the war and an outboard motor and boat shop.

One entire side of his building will now be devoted to electrical appliances, with new fixtures and shelving having been installed. The showroom, complete with large curved windows, is in full view of the traffic on Federal Highway No. 66. To take full advantage of this and other traffic, Mr. Wilkerson keeps the interior lighted with spot and flood lights all night.

Store hours will be from 11 a. m. to 9 p. m. These hours cater to the show crowd. The fact that they are under no obligation when they visit and are protected from high pressure salesmanship will be stressed in window and newspaper advertising. One advantage of these night shoppers will

Roy Wilkerson and the model kitchen that will be built in his showroom.

be that most of the time the entire family will be together and they will be able to discuss their plans in comparative quiet and comfort.

Ample parking space will be a feature to be stressed in all advertising.

The boat business requires that the business be kept open on Sunday, and for this reason, Mr. Wilkerson plans to be able to give these boat customers any information on electrical appliances that they might want and to allow them to go through the display. They will also be signed up for Monday delivery whenever they want to place an order.

Between Mr. Wilkerson's location and the city limits are several large housing projects and several new subdivisions have been planned. All the new residents and home owners will be called on by outside salesmen and their status as prospects will be entered on the office records. Mr. Wilkerson states that he has found suburban people make above-the-average customers.

Outside salesmen will make a personal call to all the city and farm homes in the areas.

"We will not wait for customers to come in to see our merchandise," Mr. Wilkerson said, "but we are starting to knock on doors just as soon as we have merchandise in sufficient quantity. We are going to call on every resident, city or farm, in our territory."

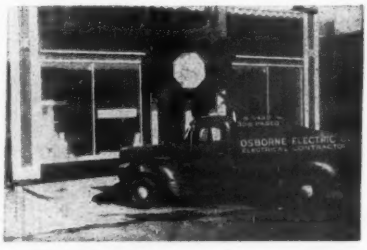
Mr. Wilkerson is sending out direct mail advertising to a mailing list of 3000 names.

Show Window Will Attract Passers-by

SHOW WINDOW electric cooking demonstrations will attract persons passing the Osborne Electric Co.'s store, 2411 N. Walker, Oklahoma City, Okla., as soon as the appliances can be obtained, Marvin R. Osborne announced.

The store faces east on Walker and the south show window will be reserved for display of a complete kitchen. This will include an electric range, refrigerator, dishwasher, garbage disposal unit and deep freeze unit. The floor inside the show window will be raised sufficiently to accommodate the necessary connections beneath the appliances and give the display the elevation to make it more easily visible from the street. The Oklahoma Gas & Electric Co. has promised to have a cooking demonstrator in the display window carrying on actual cooking operations.

An "L" type steel kitchen cabinet unit will be a part of the all-electric kitchen display.



Exterior, Osborne Electric Co.

Back of the kitchen will be a home laundry including electric washer, drier, ironer, clothes hamper and other home laundry equipment and appliances.

Number of Dealers Greatly Increased

HOW MANY dealers can a territory support? When does a territory have the right number of dealers for a good job to be done? These are questions that are bothering manufacturers and distributors—as well as the dealers themselves.

One large light and power company reports an increase of 90% in postwar over prewar dealers. Another estimates

Ready for a BIG 1946!

The Full G-E Home Laundry Line!

Feature complete equipment for a sparkling new G-E All-Electric Laundry—and watch your sales "go places!"

SOON YOU'LL HAVE THEM ALL . . .

G-E Washers, Dryers, Ironers. One *complete* home laundry line to talk about—and SELL!

Your market is *waiting* for you . . . millions of women who want to buy Washday equipment. What's more, (according to a recent national survey) *53% of them prefer G-E appliances!*

We're telling your market!

We're not letting these women forget about G-E. Every month in leading magazines—every week on the air with "The G-E House Party"—we're shouting about the All-Electric Laundry wonders G-E has to offer!

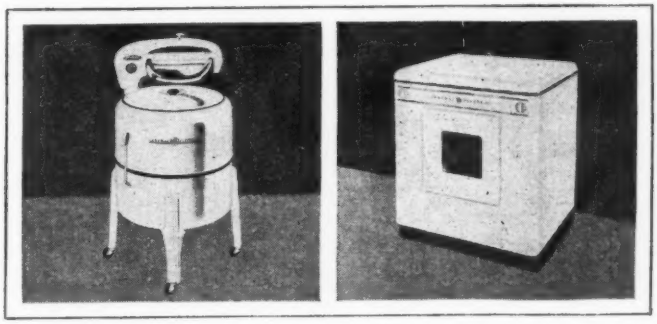
So let prospects know you have the *complete* line. See your distributor for your G-E Home Laundry Self-Starter Promotion Package . . . and let's go! General Electric Co., Appliance and Merchandise Dept., Bridgeport, Conn.

***TELL YOUR CUSTOMERS** to listen to Art Linkletter, in "The G-E House Party," every afternoon, Monday through Friday, 4 p. m., E.S.T., CBS.*

All-Electric Laundry

"THE APPLIANCES MOST WOMEN WANT MOST"

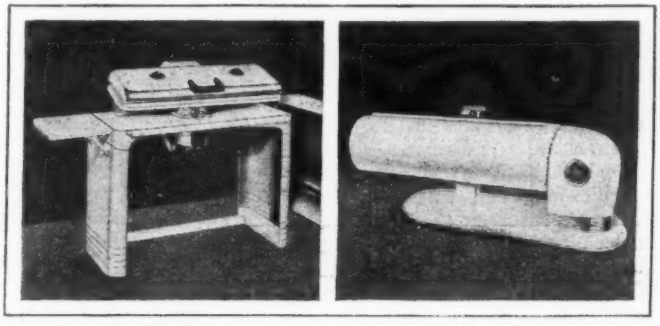
GENERAL ELECTRIC



New, Improved G-E Washer!—for "Quicker-Cleaner" Washing! G-E quality through and through! And *only* G-E has *all* these features:

"Activator Action"—gentle, thorough. *One-Control Wringer*—tops for safety and flexibility. *"Permadrive Mechanism"*—only 4 moving parts. Needs no oiling.

G-E Automatic Tumbler Dryer — dries clothes indoors! It's new—and women want this G-E wonder that lets them dry clothes *indoors*, rain or shine. Does away with lugging heavy baskets . . . gently "tumbles" clothes dry, and does it in a hurry. Saves hours of time. Saves back-breaking work.



G-E Automatic Flatplate Ironer — cuts ironing time way down! With the G-E Ironer, a woman can *sit down and iron* . . . quickly, easily turn out flat pieces, shirts, dresses. Automatically controlled heats.

G-E Automatic Portable Rotary Ironer— Light for lifting, but does a heavy job of work. Turns out all types of ironing quickly, beautifully. A touch of the hand puts the ironer in operation.

G-E Portable Rotary Ironer—An inexpensive leader! Weighs only 33 pounds, but does a full, efficient job — every time. Manually operated.

New G-E Automatic Washer is coming soon! It's revolutionary! The last word in automatic washers! Washes, rinses, damp-dries, cuts itself off—*automatically*.

that there will be an average of one electrical dealer for each 67 domestic electric customers on its lines!

The Virginia Electric and Power Company which serves more than 300,000 domestic customers, has estimated that about 1000 dealers have been franchised to handle lines of major electric appliances in the area served by this company, representing an average of one dealer for every 300 domestic electric customers.

Crystal Included In Expansion Plan

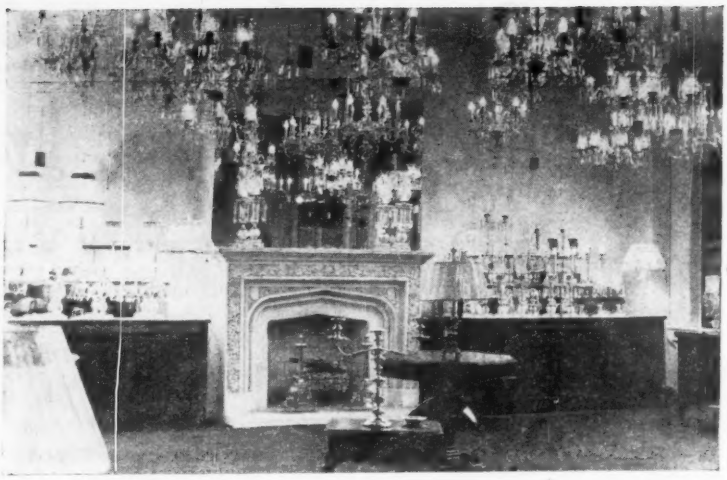
ALL set for a big expansion in business as soon as electrical appliances and equipment are available in quantities, the Oklahoma Electrical Supply Co., Oklahoma City, Okla., recently removed to new quarters at 117-119 West First Street. The firm, which was established in 1909, formerly was located at 213 West First but outgrew the space accommodations there.

The company now occupies three floors of a 50 x 100 ft. building. An attractive stock of electrical fixtures, lamps, fluorescent lighting units, appliances, air-conditioning units, wiring and other merchandise occupies the main floor fronting the First street entrance. The second floor is being utilized as the merchandising warehouse and the third floor is the metal and general repair shop.

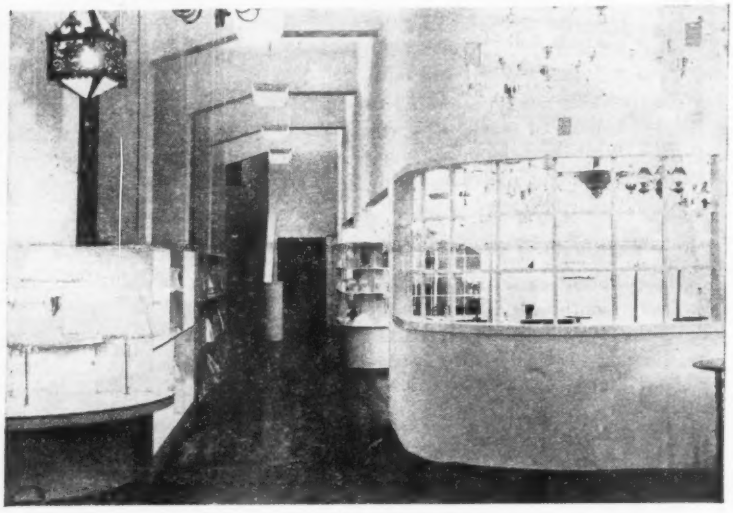
Dealer for Carrier air-conditioning equipment and General Electric appliances, the Oklahoma Electrical Supply Co., is already placing air-conditioning units and has reserved adequate space on the first floor for a greatly increased stock of electrical appliances and equipment. Stanley Hirsch, manager, says that for a time most sales will be made in the store, but that later, as electrical appliances and manpower shortages are relieved, a number of salesmen will be engaged to demonstrate and take orders outside of the office.

A part of the Oklahoma Electrical Supply business which remained constant before and during the war, and will be a permanent feature, is the sale of imported crystal chandeliers, crystal girandolas, hurricane lamps and floor lamps. A sizeable stock of fine metal light fixtures also is on display.

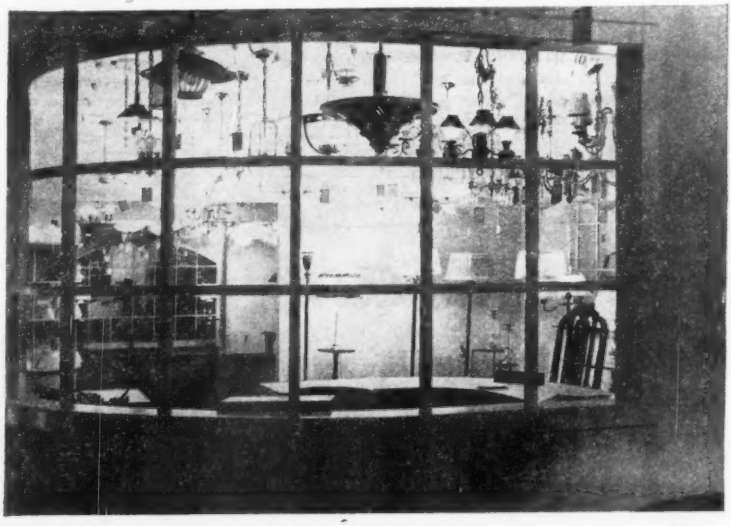
The unusual stock of fine crystal imported light fixtures occupies front position in the store where it presents a beautiful decorative foreground, plainly visible through the large "backless" plate glass show window. To the rear of this display are separate show rooms for other classes of electric lamp fixtures.



Display room of imported crystal chandeliers and fine metal fixtures located just inside a large show window, plainly visible from the street.

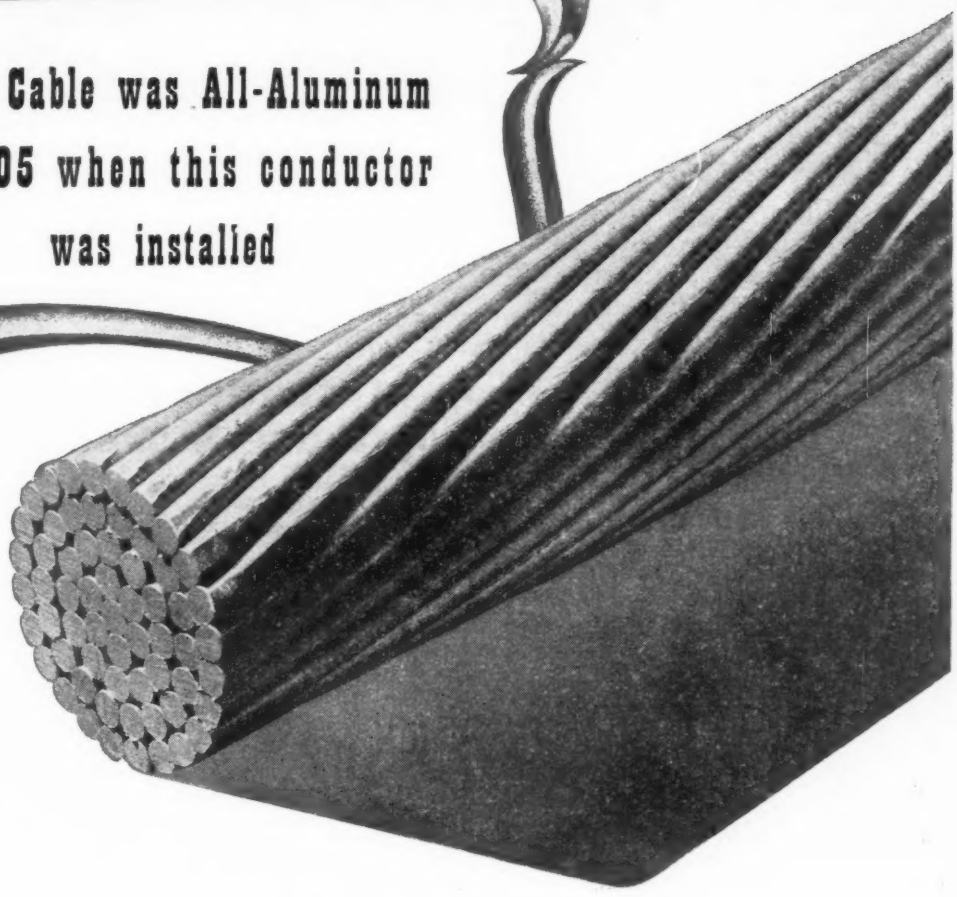


Sales aisle leading to smaller fixture rooms—boudoir lamps and shade displays are shown at left of aisles; fixture rooms at the right.



Looking back from crystal room into three rooms where better, medium-priced fixtures are displayed. Note the built-in private office.

Alcoa Cable was All-Aluminum in 1905 when this conductor was installed



Alcoa introduced A-C-S-R *in 1909*

Still in service after forty years, this Alcoa Aluminum cable had its picture taken to illustrate this fact: Alcoa's recommendations on line construction and Alcoa A.C.S.R. are backed by many years' experience.

That's why it pays to come to Alcoa when you are planning a line. That's why you profit when you build with Alcoa A.C.S.R. Hi-line or rural line, your construction is more economical, most dependable, when you employ these conductors according to standards recommended by Alcoa engineers.

For help in designing or erecting a power line, get in touch with the nearby Alcoa district office. Or write ALUMINUM COMPANY OF AMERICA, 2164 Gulf Bldg., Pittsburgh 19, Pa.

ALCOA A-C-S-R

ALUMINUM CABLE STEEL REINFORCED

Infra-Red Lamp Fast Moving Item

INFRA-RED heat lamps are not too well known or used by the public, but D. H. Holmes Co., New Orleans department store, has demonstrated that they can be sold in considerable volume with only a small amount of promotion. In the housewares and appliance section of that store they have been developed into a fast-selling, plus-profit item.

According to Laura Rider, buyer, Holmes has experienced no need for pushing infra-red lamps in order to realize large volume sales. The lamps sell themselves, as proven by the first promotion of infra-red heat lights put on last July. The basis for that summer promotion was one shipment of twelve hundred infra-red lamps.

Mid-summer, Laura Rider points out, is an unseasonable time for promoting these heat lamps. Like other merchandise, they are bought in the greatest quantities when they are needed most by customers. That time, usually, is in the fall and early spring. Frequent weather changes at those seasons make customers demand lamps in quantity.

But in spite of the unseasonable time chosen for this promotion, it proved a tremendous success. Miss Rider ran a single experimental ad, taking a large, nearly half-page space for her gamble. A center counter table on D. H. Holmes Co.'s street floor was secured for display (the Holmes housewares department is located on the store's third floor), and a demonstrator was stationed at the street floor counter. Signs were put up.

Next morning—despite the muggy, blistering New Orleans summer heat which tended to make anything with the word "heat" in its name unsaleable, a crowd was waiting to buy infra-red lamps even before the store's doors opened at 10 a.m. Within one week the entire shipment of twelve hundred infra-red lights was sold, and customers continued begging for them weeks later.

If this kind of spectacular result came from an unseasonable advertisement, reasoned Laura Rider, the store should be able to enjoy even more spectacular returns from advertising run at a time when winds and weather would cooperate to bring in customers. So as soon as another sizeable shipment could be arranged, she determined to repeat the promotion.

This time, infra-red lamp stock was left on the D. H. Holmes Co. third floor, in the housewares and minor appliance department, since the item's proved popularity and the limited stock indicated that street floor counters with their high-traffic advantages were not needed. Another single advertisement, using quarter-page newspaper space, was run.

Above a large illustration of the infra-red light itself in this advertisement was a simple "label" headline: "Penetray Infra-Red Heat Light." Drawn beside and below the lamp cut were small benday drawings of the light in action, showing people—an important advertising twist—using the lamp for muscle relaxation, hair drying, etc. The price, $1.60, was displayed in the same size type.

Like the previous promotion, this fall push behind infra-red lamp sales proved a great success for D. H. Holmes Co. Following the success of the two promotions, Miss Rider indicates that infra-red lamps will become permanent stock in the Holmes housewares department as soon as they are available in quantity. Until that time, she plans to re-order the lamps regularly, selling what she can get and putting on a big promotion similar to the first two promotions whenever there is sufficient stock from manufacturers to justify the advertising outlay.

Type of Traffic Considered In Appliance Store Location

STORE LOCATION is a problem that received little attention during the war years but the relation of location to merchandising is so important that many new stores are considering all angles of their locations. They not only count the traffic but make some estimate of the type of traffic and what its purchasing power amounts to and its buying habits.

L. P. Schwieterman opened Schwieterman's Home Appliances, in December, in Jefferson City, Mo., the capital of Missouri. Several commercial buildings were available and he selected one about two doors from the postoffice and about a block and a half from the state capitol. A block away are the buildings of the Missouri Supreme Court and the state law library and a comparatively new and modern office building containing state offices.

L. P. Schwieterman explains 1946 features to washer prospects.

These buildings are the working homes of thousands of office workers, executives, and state officials.

Most of the year hundreds of out-of-town legislators are in town and pass by his store on their way to the capitol.

Periodically the town is full of visitors who are interested in laws being passed, or have business with the hundred-and-one departments of the state government. These visitors are exposed to Schwieterman's windows.

Post office traffic is a well known factor in merchandising and is an important asset to the location.

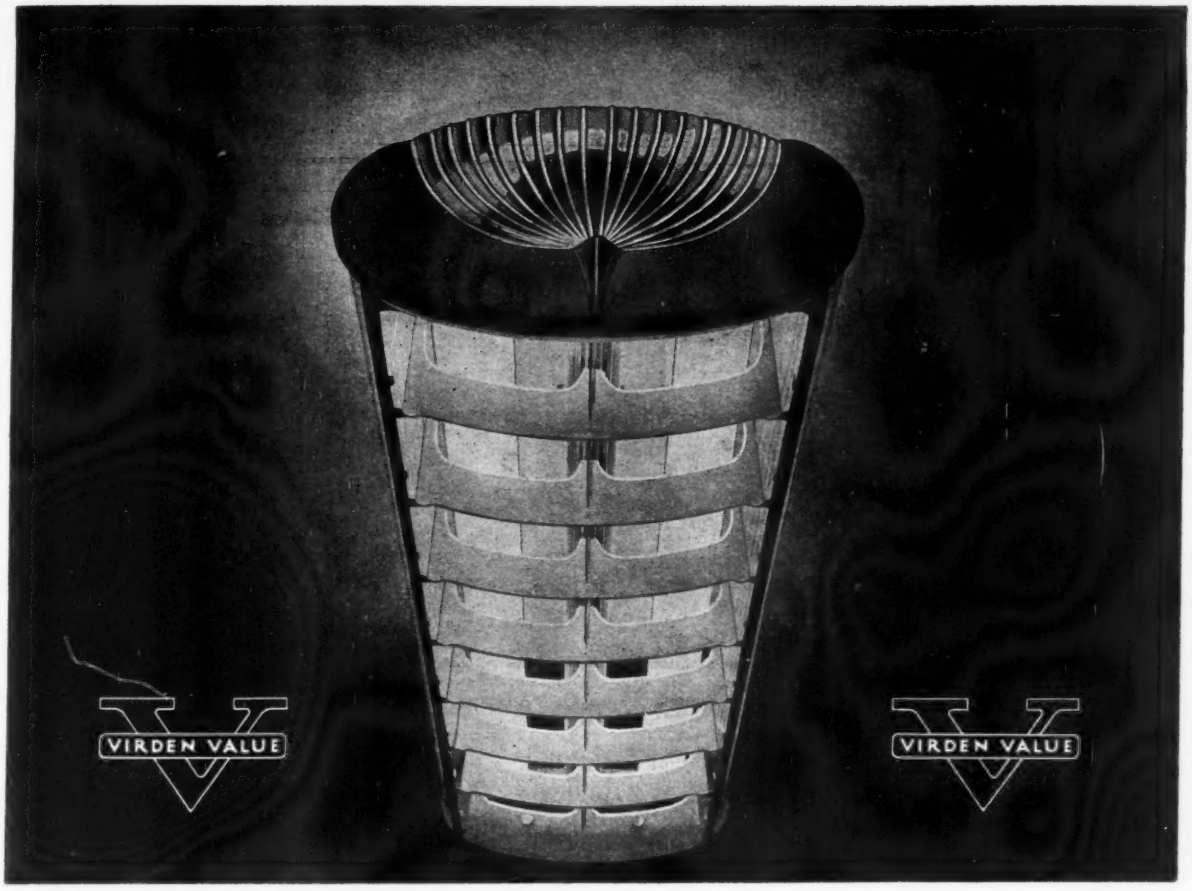
The question now in the minds of other appliance dealers is how and what are you going to sell to this class of trade? Isn't it a fact that this class of trade needs to be sold in the home?

Ostensibly Schwieterman's main line will be traffic appliances. All kinds of appliances that can be wrapped up and sold over the counter will be displayed and pushed. They will be advertised. He intends to have the largest stock and the greatest variety of traffic merchandise in town.

All purchasers of traffic merchandise will be screened for possible prospects for electric ranges, refrigerators, complete kitchens, radios, washing machines and home laundry equipment.

Visitors buy presents to take home to their family. What better gift can a legislator take back to his home from the state capital than a new toaster or a handsome iron?

Among a large population of office workers there are marriages, parties, showers, and birthday celebrations. All these events require the purchase

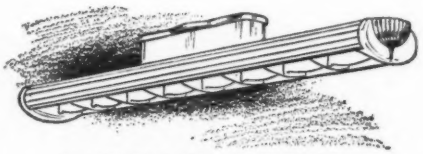


Virden Opens the Residential Fluorescent Market

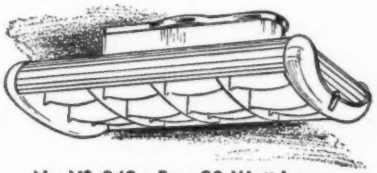
Virden's VS-224 featured above is smart—in a true sense.

It utilizes modern plastics and metals to achieve lightness, grace and beauty. That's smart—but while its designer had in mind a modestly deluxe kitchen unit, the public grasps a wider range of usefulness—that's smarter.

The public sees in these fixtures fluorescent lighting for dining room, bathroom or bedroom. They want fluorescent now. This fixture and its companion No. VS-242 make fluorescent pleasantly available at reasonable cost.



No. VS-224—Two 40-Watt Lamps



No. VS-242—Four 20-Watt Lamps

JOHN C. VIRDEN CO. • Cleveland, Ohio

of gifts. Mr. Schwieterman makes it extremely easy and logical for them to select handsome electric appliances almost at their front door.

Mr. Schwieterman figures that the first six months of 1946 will be the time for a new store to lay its groundwork and make its plans for intensive merchandising when larger items become available in larger quantities.

By becoming known as the store with the largest selection of small appliances and by steady merchandising of lamps, fluorescent tubes, tables lamps and floor lamps, this volume will become steady and permanent. Once on a solid basis, most of the sales can be made by store clerks, and the profit will go a long way toward paying all overhead expenses.

Prospects obtained as a result of small appliance sales will be filed with the sales department. By July he expects to have an aggressive outside sales force organized. These men will call on the prospects in their homes, prepared to meet sales competition and with merchandise to deliver.

Since he is handling a well known line of radios, he will establish a radio service department to service his own sales and any other sets in the hands of the user. This department will be expected to produce not only prospects for new radio sets and radio combinations, but also prospects for new refrigerators and washing machines, home laundries, sweepers, electric heaters and electric ranges.

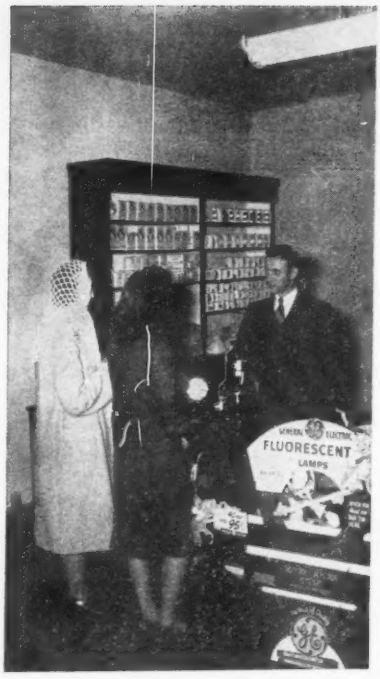
In connection with traffic appliances, Mr. Schwieterman has stocked a home vaporizer item which is used to automatically spray the air in homes.

Mr. Schwieterman is also planning on opening a home lighting department specializing in fluorescent and will sell new home owners, new home builders, and contractors. Here, as in the other departments, the opportunity will not be overlooked to sell other appliances. This department will be expected to turn in its share of prospects to the sales department which will aggressively sell the larger appliances.

After six months Mr. Schwieterman thinks that selling appliances will be partly a door-to-door job. He plans to visit all his live prospects first, and then have each salesman make a certain number of additional "cold" calls.

A given number of calls will produce a certain number of prospects and a certain number of prospects will produce a certain number of sales.

Each salesman may be required to make only one cold call a day, but five cold calls a week may produce



L. P. Schwieterman (behind counter) sells room vaporizers.

one good prospect. Besides that, it keeps widening the circle of influence of the store. Every person who is made acquainted with the store, its stock, its location, is just that much nearer becoming a customer.

Before opening his own store, Mr. Schwieterman was employed by the Stokes Electric Company, of Jefferson City, and also formerly was in charge of outside sales of appliances for the Missouri Power & Light Company.

From the Notebook Of a Supersalesman

By Chas. B. Roth

WHAT'S the most important quality a salesman can have? I asked a medium-sized group that question not long ago, and got all kinds of answers. Some men said energy; some said imagination; some said personality, and so on.

While I believe all those qualities are important, they're not the most important single quality. I think the most important single quality is the salesman's ability to inspire absolute belief—believability.

Everything a salesman does helps this, of course—his attitude, his choice of words, his record, even the way he lives. But Gustave Le Bon, French psychologist, is more specific. He gives three definite rules, and I think any salesman would do well to memorize and practice the rules.

Le Bon's three roads to believability are these:

1. **Affirmation.** When you affirm a thing you state and restate it with conviction. No doubt. No quibbling. Just a confident statement that your goods have value and will profit the prospect.

2. **Repetition.** Then you have to repeat, repeat, repeat to make your man believe. The first few times he hears you he may doubt. But any idea repeated often enough is believed in the end. So go over your sales points again and again.

3. **Contagion.** He takes his feelings and beliefs from yours, so if you are enthusiastic he likewise is enthusiastic; if you believe, he also believes. We say, "Feelings are contagious." Right. And the wise salesman expresses enthusiasm, belief, conviction in every line of his body, in every expression on his face, in every tone of his voice.

Maybe in these days and in the days to follow you will find Le Bon's simple three rules of great help in doing a better job each day.

Selling in the Future

"OUT where I come from," remarks a character in one of O. Henry's stories, "we even imagine in facts." Which was his way of saying that he was a hard-boiled realist to whom pretty theories were of no use.

He might have been describing the chief attribute of tomorrow's salesmen—a desire to face the music of facts

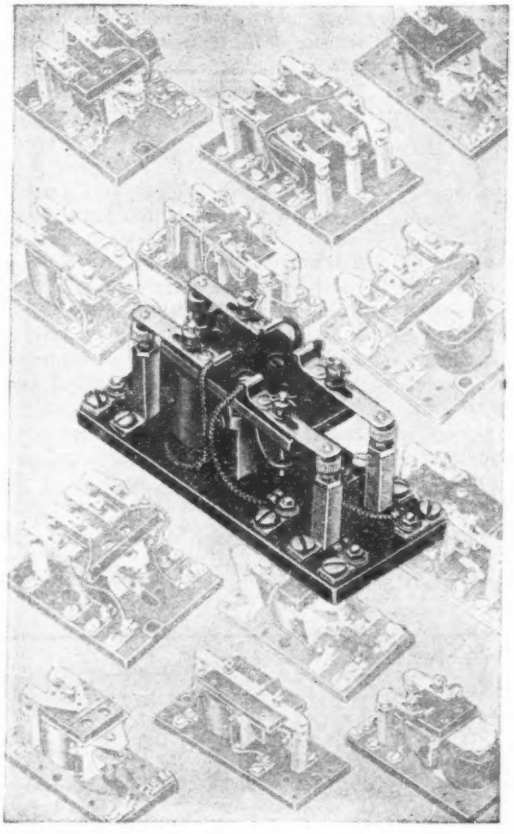
and sell on facts rather than on hopes.

This is the first attribute of selling tomorrow, according to a survey made among top ranking sales executives. Without exception, these men say: "The salesman who makes the grade tomorrow will be a man who respects and uses facts all the time.

"More data – less hunches," is the way one salesmanager who expresses himself in terms of epigrams puts it—"more data—less hunches."

(Continued on page 89)

A NEW IDEA



BULLETIN 130 RELAYS

To serve the Electrical and Electronic Industries Ward Leonard has developed a relay capable of service in the widest possible variety of applications.

By designing a basic relay it was possible to produce a unit employing many interchangeable parts. With interchangeable components the broadest range of requirements as to voltages, currents and contact arrangements can be met.

By employing modern production methods embodying standardization of relay parts the greatest flexibility of individual relay assemblies of highest quality is provided. This standardization system, along with quantity production, fully assures the user of a better, more economical relay, utilizing the most modern features of relay design.

The Bulletin 130 relays offer the user the choice of one to four poles, 6 to 230 volts D. C. and 6 to 440 volts A. C. in single or double throw, normally open or closed, with or without blowout coils and a host of other options. With such flexibility of arrangement, custom requirements can be met without prohibitive cost or undue delay in delivery.

WARD LEONARD

RELAYS • RESISTORS • RHEOSTATS

Electric control (W) *devices since 1892*

Send for Bulletin No. 130 giving full particulars of this line of Relays. In it you will find relays that exactly meet your requirements.

WARD LEONARD ELECTRIC COMPANY

37 SOUTH STREET • MOUNT VERNON, N. Y.

OFFICES IN PRINCIPAL CITIES

Private Office Lighting Design

By A. W. Larson*

THE PROBLEM of designing a lighting system for private offices has baffled lighting engineers for years even though the lighting of a general office seemed relatively simple. Now, with a new technique, the problem has been solved.

By engineering the layout of the luminaires with respect to the desk and table, the ideal in quantity and quality of illumination is provided with standard fluorescent luminaires.

The new method may be termed "functional lighting" or "specific lighting" since the purpose involves the fundamental requirement which is "to provide maximum seeing comfort for the person working at the desk or table." It definitely is a deviation from common practice of adhering to the laws of symmetry. But isn't it reasonable to say, "Why select lighting as the only thing that is symmetrical in a private office?" There usually is nothing else symmetrical in an office, if the office itself is symmetrical.

Fundamental Considerations

There are three main reasons why private office lighting is difficult:

1. The installation efficiency (utilization coefficient) is low because of the small area. This means it is often impossible to make a symmetrical layout that will provide the desired level of illumination without a "fixture store" appearance, or excessive wattage and heat.

2. The lumen method of calculation determines the average illumination only and therefore does not give the expected intensity on the desk or table which is of most importance.

3. If a symmetrical layout can be made to satisfy appearance and average foot-candle requirements, the cost is often deemed prohibitive. The cost per foot-candle per square foot is higher than for a larger general office because of the lower installation efficiency.

Private office lighting has one advantage from the standpoint of luminaire location, and that is the demand for flexibility in locating the desk or table is not as important as for a general office. Usually there are only a few practical positions where the desk and table can be placed. It is important, however, that they be located to utilize natural light from the windows to best advantage.

From a quality standpoint, private office lighting techniques commonly used today have certain disadvantages. The single fixture installation illustrated in Figure 1 is so located that the brightness of the fixture will be reflected from the desk top, paper, pencil-writing and instruments commonly used in offices. Pictures or glass partitions can also be a source of reflected glare with critical locations of luminaires, such as this.

Even if the luminaires are symmetrically spaced to provide a desirable intensity, reflected glare invariably results, whether working at the desk or table. This is shown in Figure 2. The requirements then are to eliminate reflected glare by locating the luminaires around but not in front of the person working at the desk or table. Specular images of the luminaire brightness then are reflected away from the eyes of the person sitting at the desk.

The New Technique

For the office shown in Figure 2, four 4-lamp, 40-watt fluorescent luminaires installed as shown, would provide an average level of 38 foot-candles in-service and approximately 63 foot-candles initially. With these same four fixtures installed as shown in Figure 3, the illumination varies as indicated by the "Foot-candle Distribution" curve from A to B. These curves illustrate clearly that the abundance of light is on the table and desk and that the person working at the table (which seems to be a most common occurrence) works under a high intensity and looks into a low graduated intensity when looking across the

*Mr. Larson is lighting engineer for Lighting Division, Westinghouse Electric Corp., Cleveland, Ohio.

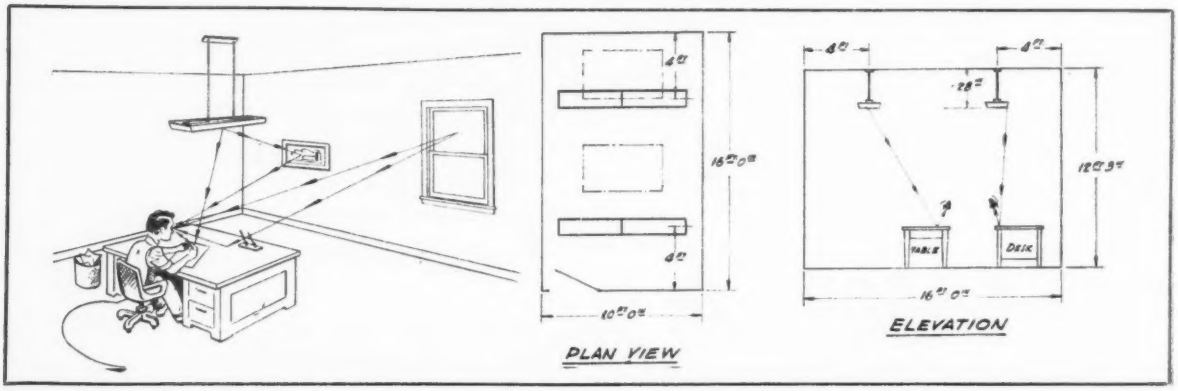


Figure 1. (Left) Reflected images of the luminaire brightness from shiny surfaces cause eyestrain, a common occurrence in private offices and not always fully recognized. Figure 2. (Center and right) Four direct-indirect fluorescent luminaires installed as shown would produce 38 foot-candles average in-service illumination. Whether working at the table or desk, the eyes will be subjected to constant reflected glare.

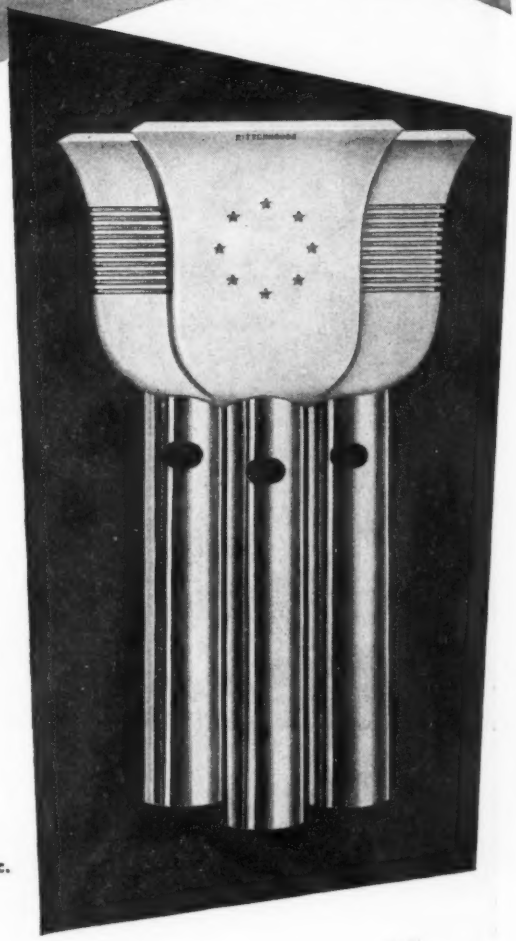
You're on your way to SURE *Profits*

...when you feature

Rittenhouse

Golden Tone

DOOR CHIMES

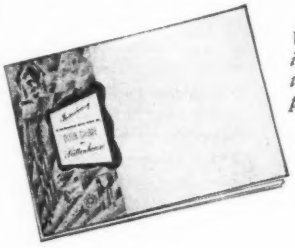


With the tremendous sales momentum Rittenhouse Magazine and Newspaper advertising has already created for 1946 Rittenhouse Chime models, wholesalers and dealers *know* they are not gambling on guess-work when they get behind the new, "Big Time" Rittenhouse Chime sales program. It's paying off *now* and coming months will be better still.

Rittenhouse dealers can take our word that the greatest, most complete Rittenhouse merchandising drive ever launched will gain new power—and new speed—in its 1946, *pre-tested* chime-selling job!

Just as Rittenhouse eliminated all objectionable chime "static"—mechanical noises—from 1946 models . . . and thus made possible new triumphs in tone perfection . . . so will continually publicized Rittenhouse Chime beauty, mechanical features and Norman Bel Geddes style accomplishment start a steady flow of consumer-buyers to Rittenhouse dealers—*in all communities.*

This stunning, Ivory Plastic **BEVERLY MODEL** is but one of the ten new Rittenhouse 1946 Chime beauties home owners will open their pocket-books to, the moment they see and hear it.

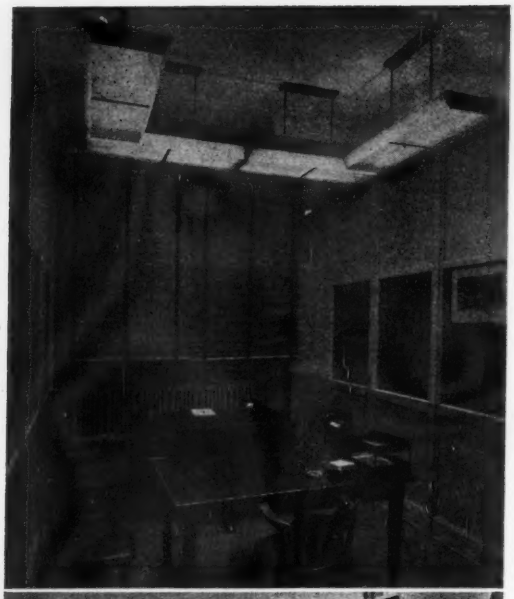


Write for a copy of the Rittenhouse Broadside illustrating the complete line and outlining the 1946 Rittenhouse advertising and product promotion plans.

The A. E. RITTENHOUSE COMPANY, Inc.
HONEOYE FALLS, NEW YORK

♫ Rittenhouse ♫

AMERICA'S FINEST CHIME SIGNALS



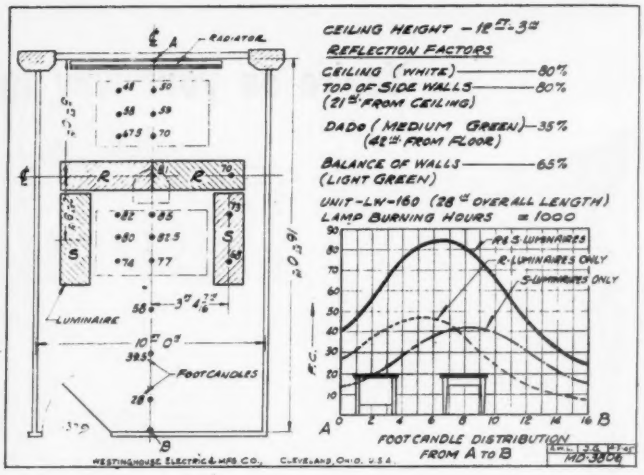


Figure 3. (Above) To eliminate reflected glare the luminaires should be around but not in front of the person working at the desk. Note that the maximum intensity is at the location of the table and desk.

●

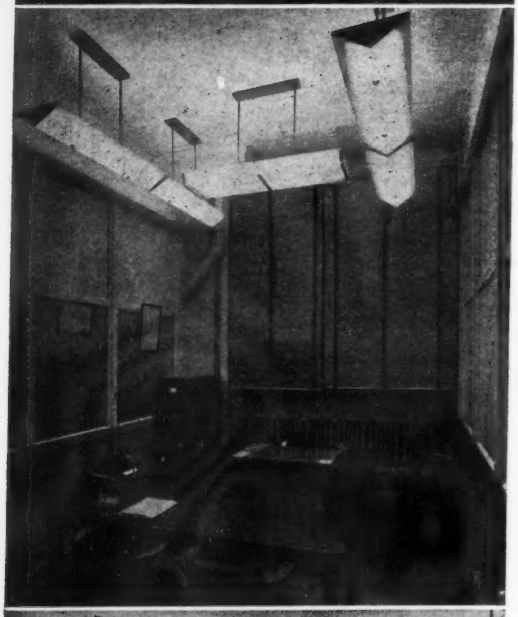


Figure 4. (Left at top) Here is the installed layout of Figure 3. clearly indicating that the lighting is installed to do a "specific lighting" job providing 85 foot-candles with maximum seeing comfort to the person working at the table.

●

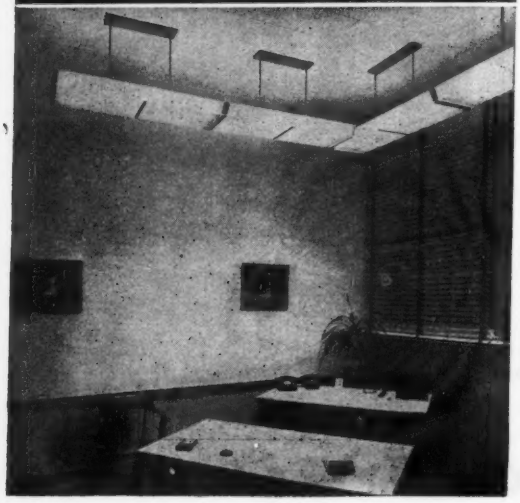
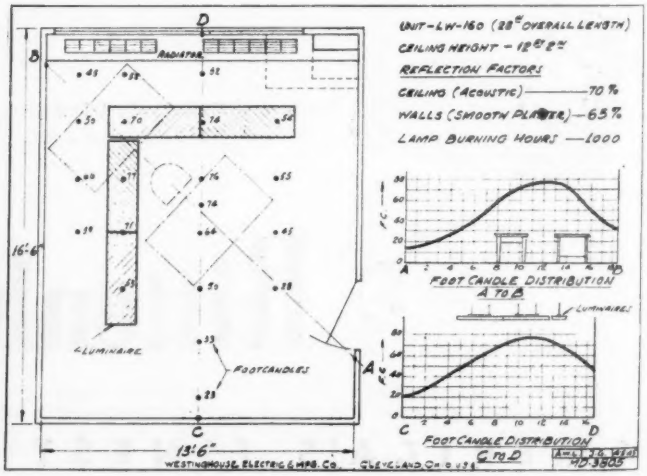
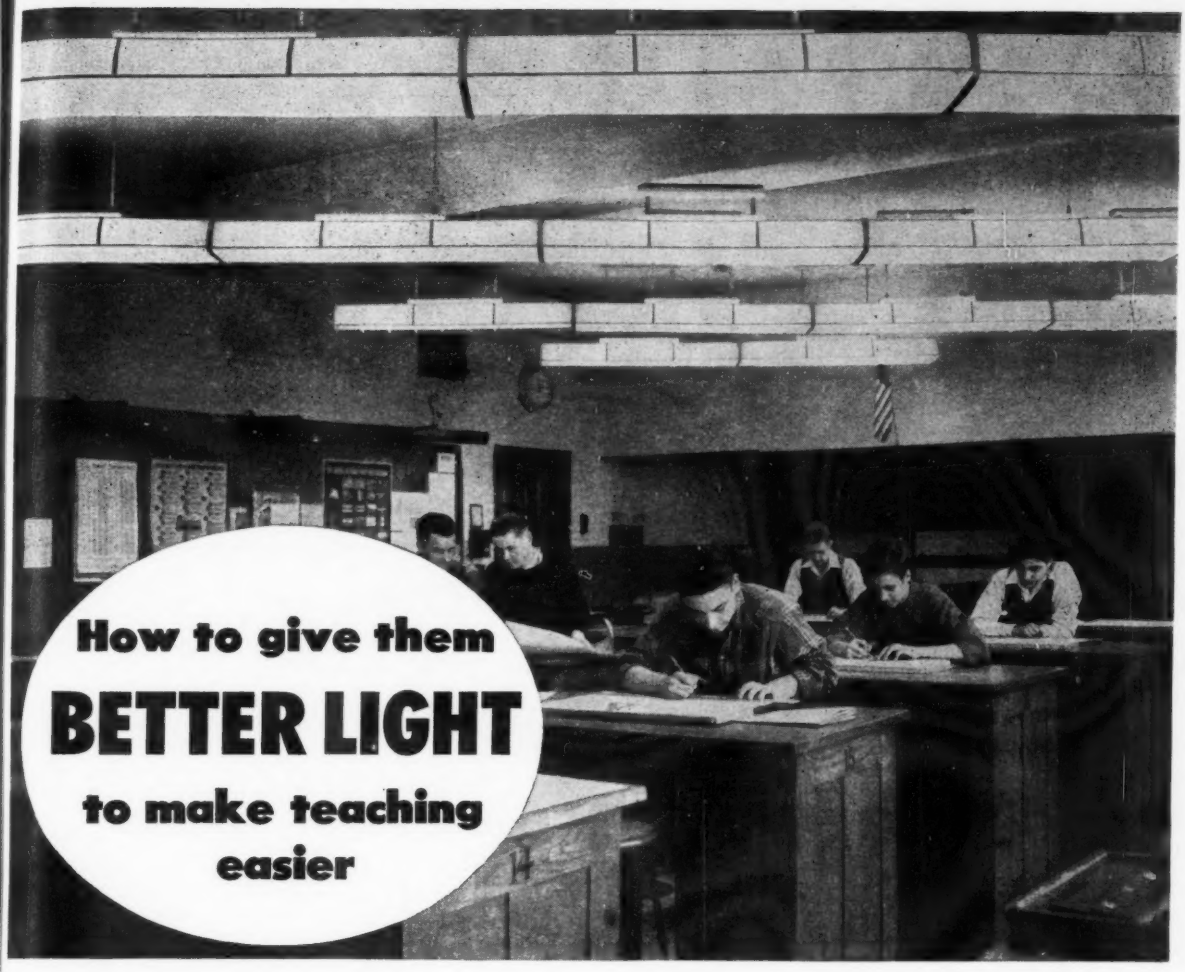


Figure 5. (Left) This office is the same size as the office in Figure 4. A layout of direct-indirect fluorescent luminaires formed in an "H" pattern provided 60 foot-candles on the table and desk, after 1,000 hours of burning.

●

Figure 6. (Below and at left) An ideal layout for an office of this type is the "L" design. The average illumination from A to B is 48 foot-candles, while at the desk and table the intensity is over 70 foot-candles.





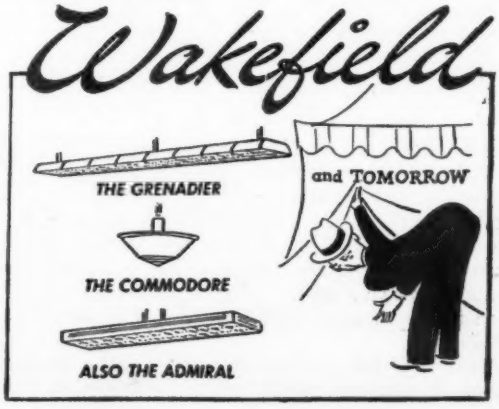
Wanted: Light for the drafting room of the Pontiac VOCATIONAL SCHOOL, Pontiac, Michigan, that would help pupils learn faster and make the close eye work of drafting easier, less strain.

Problem: Providing high level, overall lighting, with good distribution on walls and ceiling for greater eye comfort . . . despite the interference of large beams on the ceiling.

Solution: Lighting engineers of the Consumer's Power Company produced a practical and effective answer—continuous rows of Wakefield GENERALS (G-260) mounted diagonally to the drafting tables. This gives good shadow control, and the open top and plastic sides help provide comfortable light distribution, with 52 foot-candles on drafting boards. In this 26 by 40′ room with 12′ ceiling, 19 units are used, each with two 100-watt fluorescent lamps. Mounting height 10′ above the floor.

School rooms in your territory may require different treatment, different equipment. But you can be sure that Wakefield will be glad to work with you in securing engineered lighting to fit your customers' needs. The F. W. Wakefield Brass Co., Vermilion, Ohio.

Are Your Customers Throwing Away Dollars? *Proper lighting maintenance—cleaning fixtures and walls and relamping—can double or triple their lighting. Urge them to get the light they pay for—keep lighting equipment clean!*



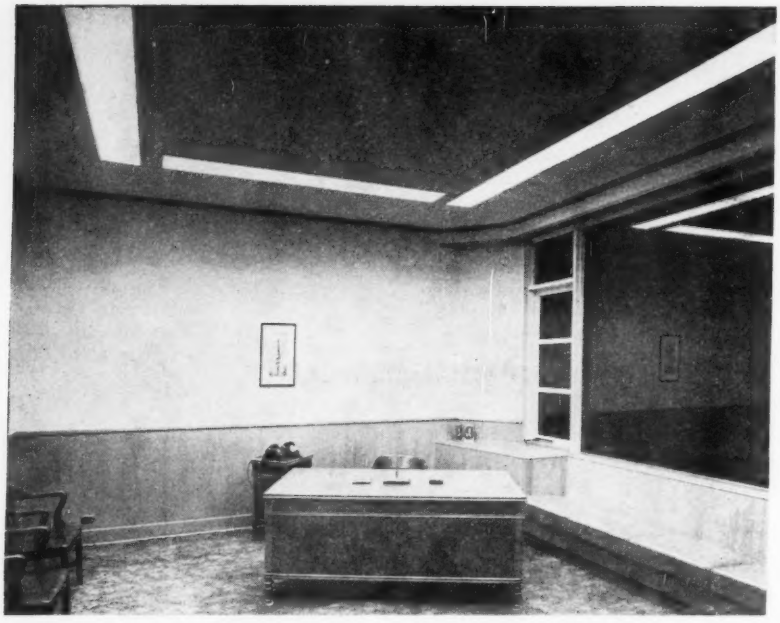
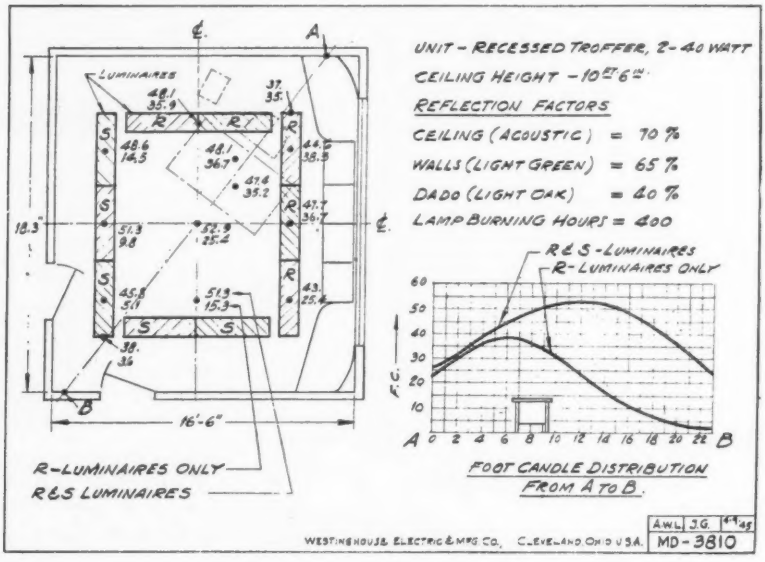


Figure 7. By forming a rectangle or square design with 2-lamp, 40-watt, troffer units, flexibility in lighting can be had by separately switching the "R" and "S" units. With both "on" for conferences, an average of 43 foot-candles from A to B was obtained. To eliminate annoying reflected glare for the person working at the desk, luminaires "S" should be "turned off" thus having only the "R" luminaires lighted. The illumination on the desk reduces slightly, while the average reduces considerably.



room in front of him. By measurement, brightness contrast of this installation was well within good design, and by observation, no harsh brightness existed in the form of either reflected or direct glare as viewed within normal viewing angles. Figure 4 shows the appearance of this U-shaped installation.

After 1000 hours of burning, the average illumination from A to B (Figure 3) was 57 foot-candles. This compares favorably with the calculated initial average level of 63 foot-candles; however, the intensity at the table was 85 foot-candles, even after 1,000 hours of burning. This exceeds the average by 49%, which is acceptable since the brightness contrast of the surroundings are well within accepted practice. The brightness of the walls is more important than the foot-candles on the horizontal plane between the table and the wall.

Many designs to accomplish the same results can be made, the choice depending upon the shape of the room and possible desk locations. The other photograph and diagrams illustrate several more designs. All are designed to comply with the fundamental requirement "to provide maximum seeing comfort for the person working at the desk or table" and, therefore, can be classed as "functional lighting" or "specific lighting."

Summer Sunshine From New F Lamps

DISCOVERY of a new "phosphor," resembling the powder used in fluorescent light tubes—the first of its kind to permit manufacture of revolutionary lamps producing invisible ultraviolet in desired proportions for both humans and for poultry—has been announced by General Electric Lamp Department, at Nela Park, Ohio.

A very thin coating of the new white powder on the inner surface of present G-E germicidal lamps serves to produce an ideal combination of germ-killing and health-giving radiations long desired by poultrymen. Two sizes of these "Poultray" lamps have just been developed by G.E.

A heavier coating of the new phosphor in similar tubes has also made possible a super G-E sunlamp for human application. Two sizes of the latter type have been developed. Each is many times more efficient in producing biologically effective ultraviolet and suntan than present sunlamps.

The smaller G-E "poultray" lamp is a 15-watt tubular unit 18 inches long; the other is a 30-watt tubular type 36 inches in length. Samples of each are available to fixture manufacturers.

The new G-E super "suns" are also tubular shaped. One is a 20-watt, 24-inch unit; the other is a 40-watt, 48-inch size. Both tubes are made of special glass which screens out the few germicidal rays not converted by the phosphor coating into desired radiation found in natural summer sunshine. These super G-E sunlamps will be commercially available as soon as reconversion facilities permit.

The phosphor achievement culminates ten years of relentless research at the Nela Park laboratories for a fluorescent powder capable of efficiently converting the wealth of "2537" germ-killing waves, generated by low pressure mercury discharge

(Continued on page 89)

Start RIGHT AND YOU End RIGHT!

with WESTONS ON ALL PRODUCTION TEST-STANDS AND INSPECTION EQUIPMENT!

With the race for markets in full swing, electrical manufacturers are eliminating costly production bottlenecks by providing *uniform dependability* in testing procedure all along the line. From the inspection of purchased components right through to final product inspection, they insure accurate testing by using instruments they can trust.

And it's easy to insure *measurement dependability* at every step, because there are WESTONS for every testing need . . . including types for all special test-stand requirements, as well as a broad line of multi-range, multi-purpose test instruments. These compact, multi-purpose testers often afford new simplicity and economies in testing procedure, while assuring the dependability for which WESTONS are renowned.

Literature describing the complete line of WESTON panel and test instruments is freely offered . . . Weston Electrical Instrument Corporation, 686 Frelinghuysen Avenue, Newark 5, New Jersey.

Weston *Instruments*

ALBANY • ATLANTA • BOSTON • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • JACKSONVILLE • KNOXVILLE • LOS ANGELES • MERIDEN
MINNEAPOLIS • NEWARK • NEW ORLEANS • NEW YORK • PHILADELPHIA • PHOENIX • PITTSBURGH • ROCHESTER • SAN FRANCISCO • SEATTLE • ST. LOUIS • SYRACUSE
In Canada: Northern Electric Co., Ltd., Powerlite Devices, Ltd.

What the Plant Engineer Expects From the Power Salesman

By H. S. Colbath*

WE FACE the tremendous problem of readjustment and reconversion. Readjustment is placed ahead of reconversion because no industry has had an easier job of reconversion than the utilities, and the textile mills certainly were not faced with the reconversion problems of the automobile and kindred industries.

In discussing how the utility company's industrial power engineer can be of maximum help to his textile customers, the author can draw upon his experience both as an industrial plant engineer and as a former industrial power engineer. Eight years out of 18 spent in the service of a utility company were utilized in beating the bushes for new business and in protecting the old customers from being misguided by some high pressure equipment salesman.

It can be taken for granted that most of you have demand-energy type power rates and most of you see the customer's meter readings each month. You should check your textile customers' bill and if the demand or kilowatt-hour consumption is unusually high or low, you should immediately contact the customer and endeavor to determine the cause of the change. It may be that your customer has added some new load without your knowledge; he may have a ground on his system; or perhaps he has failed to put his capacitors back into service or has several blown fuses on his capacitors and has not discovered that these conditions exist.

You could solicit the aid of your meter readers in calling these variations to the customer's attention at the time he reads the meter. If you use a chart type demand meter, perhaps a few minutes' study of the chart in such cases would save a great deal of letter-writing and explaining later.

The industrial power engineer should keep his textile customers advised on industrial rate changes even though these changes do not benefit the customer. By being the first to call it to the customer's attention and providing the customer with a copy of the new rate for personal study, the engineer would create an atmosphere of friendliness and confidence between customer and utility and leave the customer with a feeling of assurance that his interests were being looked after and that his business was appreciated.

The industrial power engineer should always be on the alert for any methods of conserving electricity and pass it on to his textile customers in order that they may compete in the market with goods produced by textile plants whose electric power purchases are subsidized by government ownership.

The industrial power engineer is usually an electrical engineer and presumably knows something about the application of infra-red and high frequency heating and drying. He also knows refrigeration and humidification—that is, he would have to know about these things if he would be of maximum benefit to his textile customer.

But assuming the power engineer knows these subjects well, does he know anything about their application to textiles, their effect on starch, yarn strength, yarn setting, blending of natural waxes, or induced chemicals in textiles, effects on various dyes, and last but not least, their application to textiles in special machinery for drying, etc. If he doesn't know about these things, then he can't be of maximum help here either, but you can believe with certainty that all of these subjects are being studied and much is being accomplished by some of your textile customers.

Any utility who has textile industry as its principal load should have a textile research laboratory in connection with its industrial engineering department and should ever strive to help its textile customers fight competitors by developing new machinery, electric applications of drying, and heating, and methods of developing a superior textile product by the use of electricity.

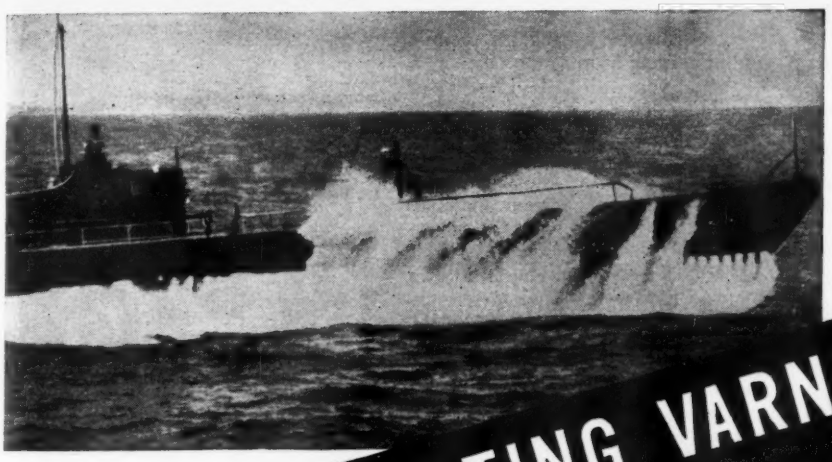
The alert power engineer should keep up with steam turbine, diesel engine, gas turbine, and atomic power developments and keep his large industrial customers informed truthfully of the cost of producing power with them. If you don't do this, you can be certain that equipment salesmen will keep your customers starry eyed with stories of efficiencies and cost to be found only in the test laboratory, which in the end will at least cost you a few customers.

The power engineer should be available to make efficiency tests and aid his textile customer in other lines of determining power use and cost. He should help the mill by making wiring layouts, recommending wire sizes, switches, conduits, etc., and have available a lighting engineer to make complete and detailed lighting layouts in order that the customer might use these specifications to secure competitive bids or do the work with his own crew if he so desired.

If the power engineering department would be of any appreciable benefit to their textile customers, they must first increase the number of trained engineers and secondly give these engineers tools with which to do the job, and then back them up with notices to the customer that such services are available.

***Mr. Colbath is plant engineer for the Bibb Manufacturing Company of Macon, Ga. This article was adapted from a talk made before the Industrial Power Committee of the Southeastern Electric Exchange, Dec. 7, 1945.**

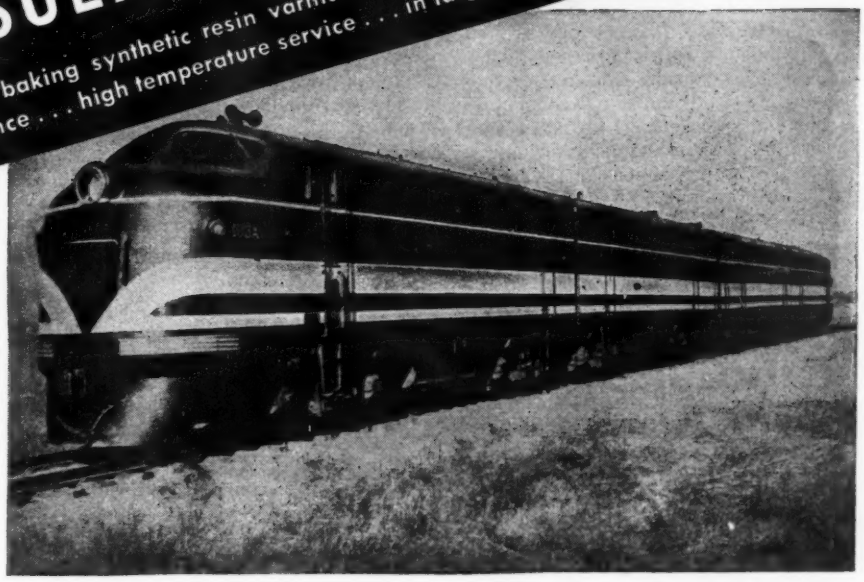
No electrical equipment can be any better than its insulation



This insulating varnish helped give range to our "Silent Service" . . .

G-E INSULATING VARNISH 1678

A clear baking synthetic resin varnish . . . excellent for moisture resistance . . . high temperature service . . . in large electric motors.



. . . and the same varnish can make a more dependable Diesel electric drive

The excellence of G-E Insulating Varnishes is backed by 45 years of experience in research and manufacture. Millions of gallons of these varnishes were supplied for war uses. Now General Electric's huge varnish production capacity—plus expert technical service—is available to peace industry. G-E Quality Control is your assurance of uniformity in every shipment of G-E Insulating Varnishes. For full details consult your local General Electric Merchandise Distributor. Or write direct to Section RIMA- 264, Resins and Insulation Materials Division, Chemical Department, General Electric Company, Schenectady 5, New York.

GENERAL ELECTRIC

GD 46-HR

G-E INSULATING VARNISHES

G. E. OFFERS A COMPLETE LINE OF INSULATING MATERIALS

If there is a textile customer on your lines and he desires to have a detailed lubrication survey made, he doesn't have to call in an outside contractor, he can pick up his telephone and within a short time have anyone of half a dozen highly qualified lubrication engineers in his plant, and they will stay one day or thirty days making a complete engineering survey and lubrication layout without cost to the textile mill; and why? because he is after business or interested in keeping out competition.

One can call another set of numbers and in five hours his office will be filled with the best paint experts anxious to write specifications, recommend methods of application, and even supervise the paint job for you if you want to do your own painting.

Call the coal dealer and he will give you the finest of fuel engineering, run efficiency test of your boilers, and make all kinds of recommendations to effect fuel economies.

Another call will bring the natural gas engineer anxious to give every engineering aid including complete plans and specifications for changing your boiler over to natural gas or how to fire your present natural gas boiler more efficiently.

The boiler engineer will make every recommendation, construction drawings, and provide erection supervision for a new boiler or old boiler repairs.

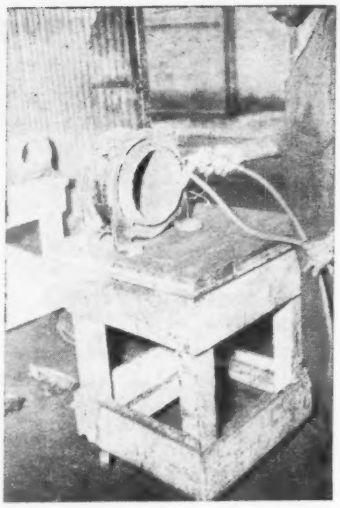
A pump engineer, a steam turbine expert, a diesel engineer will give you every assistance in using his product and in keeping it operating efficiently.

Should you wish to build or repair a building, let it be known and under normal conditions, you can get a construction drawing, a list of necessary material with prices, etc., all without charge from your materials dealer.

Can the power engineer meet these services? Have I given you an idea of some of the services your textile customer wants out of you besides kilowatts? Will the utility management give you the tools, the manpower, the transportation and the permission to grant these requests?

Until sufficient industrial engineers are employed by the utilities to adequately serve their industrial customers and until restrictions are removed from the services they are allowed to render, the big job that the industrial power engineer is qualified to do will go undone with both utility and textile customer the looser.

Your work is done under the close surveillance of the public's eye. The conspicuousness of your job should increase the joy of doing it and encourage you to do it so well that it will always be a credit to your pride and that of your company.



Spray gun and spray booth speeds up refinishing of motors. Gun is used for spraying coil seal as well as outside finish. Thinner spray keeps gun clean.

Painting Motors and Coils With Modern Spray Guns

THE secret of plainting motors fast and well is to use a spray booth and to paint with a spray gun.

Because many have tried this method and have found the hand brush more satisfactory, this article will show how small the difference is between success and failure.

By using the spray gun method, the Armature Winding Company, Charlotte, N. C., has been able to produce ten times more painted motors than by the hand method.

Much of the time lost by spray gun is in keeping the nozzle clean and the gun operating. The moral is to keep the nozzle clean. When the paint has dried in the gun, it will have to be cleaned out before using.

The secret of this is not to let the paint dry in the gun. Armature Winding Company uses two screw-on tanks for the gun. One is for paint and one is for thinner. When the painter is through painting and puts his gun up, he unscrews the paint container and screws on the container with thinner. He then shoots this through the gun and hangs it up for the night. The next morning before using he puts thinner through the gun and then puts on the paint receptacle. The result is that the gun is always ready for use.

The next requisite is good equipment. Armature Winding Company bought good paint guns and properly engineered equipment for reducing the air pressure to the best pressure for painting.

A place for everything and everything in its place cuts down the lost time in painting motors. Near the air gauge, a place was provided for hanging the guns. The paint receptacle hangs just above. The easiest thing the painter can do is to shoot thinner through his gun and then attach the paint receptable. Convenience, like time in a contract, is of the essence. By placing the compo-

(Continued on page 89)

For SAFETY'S sake . . . use CONDUIT

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PLANT modernizaztion brings opportunity to replace unsafe, temporary wiring methods and materials with approved time-tested systems.

You can now use standard-threaded, full-weight rigid steel electrical conduit wherever real protection is needed — for strength and endurance, for prevention of penetration of moisture, vapors and dust, for effective resistance to shock, vibration, corrosion, arcing and short circuiting.

The most widely used standard-threaded, full-weight rigid steel conduit is Youngstown's BUCKEYE. Your distributor has BUCKEYE CONDUIT in stock again — in the sizes and quantities you need.

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Right - This upper floor remained unfinished for several years. The rigid steel conduit afforded vital protection to wiring, against careless workmen and intruders.

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Experimental Carrier Phones Installed on Arkansas Lines

HOPE THAT the carrier telephone method of communication may bring telephone service to many farmers who have electric service, but are out of reach of telephone lines, was expressed by Claude R. Wickard, administrator of the Rural Electrification Administration, in commenting on test installations of the new facilities just made in Arkansas.

Pointing out that ordinary REA-financed rural power lines are being used for the Arkansas test of the carrier method, Mr. Wickard said that success may open the way to telephone service for many of the nation's 2,750,000 farm families now served by rural power lines, as well as for additional users to be connected under REA's future program.

In the test, announced recently from Jonesboro, Ark., by the Southwestern Bell Telephone Co., of St. Louis, carrier telephone equipment will be in everyday use by four local telephone customers served with power by the REA-financed Craighead Electric Cooperative Corporation, of Jonesboro.

In the new system, as explained by REA and Bell engineers, speech is transmitted by means of a carrier wave of radio frequency, which travels on the power lines along with the power supply. Electronic transmitting and receiving equipment is installed at the switchboard and at the subscriber's end of the line. The dial instrument is used as in regular telephone service.

Research Begun Before War

Several years before the war, Bell Telephone Laboratories began research into the problems of adapting carrier telephone technique to rural power distribution systems. REA, originally interested in a means of providing communication between power maintenance crews and their home offices, assigned engineers to the joint research project in 1939. Since then engineers have made numerous field tests over REA-financed lines but the Arkansas installations are the first to be made for continuous operation under actual working conditions. Work was suspended during the war and resumed only recently.

One of the engineering problems was to prevent mutual interference from low frequency, high voltage power and the high frequency low voltage carrier currents flowing in the same wire. It was also necessary to eliminate reflections from branch lines and to assure safety of users and maintenance personnel.

Telephone lineman completes installation of carrier type telephone in Brookland, Ark., during initial tests by Bell and REA.

Infra-Red Lamp Uses For Farm Purposes

A WIDE range of uses on the farm can be found for the new R-40 infra-red heat lamp, according to a recent publication of College of Agriculture, University of Idaho. Available in 150, 250 and 300 watt sizes, with built-in reflectors either of the flood or spot types, the lamps can be applied to many drying and other applications requiring supplementary heat.

Varied amounts of heat may be obtained by selecting the wattage and number of bulbs required for the job. Long service life is obtained from the unit due to the relative low filament operating temperature as compared with the Mazda lamp. The low filament temperature also reduces the brightness, so the lamps may be used for therapeutic purposes with a minimum annoyance from glare.

The light bulb heating unit is ideal for quickly drying a new-born lamb, especially during the cold winter weather. Lamb brooders are easy to construct from lumber or insulation board, and the socket and bulb may be mounted in a tin can with a piece of hardware cloth to protect the bulb from breakage. Because the lamb brooders are needed only for the first two or three hours after the lamb is born, a single brooder may be used for many lambs during the season.

Dr. Glen C. Holm, veterinarian for the University of Idaho, College of Agriculture, recommends the use of a heat lamp in maternity pens, especially for pigs, lambs, and calves. The dry heat from the lamps has an advantage for treatment to young livestock during cold weather.

Drinking cups for animals and hog watering troughs may be insulated and the control valves kept from freezing by mounting the heat bulb as shown in the plan. The bulb should always be mounted out of the way and protected from the livestock. In all types of water heating it is a good practice to use plenty of insulation and expose as small amount of water as possible to the cold.

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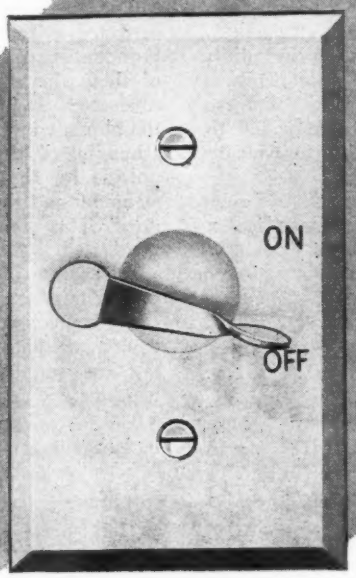
BRYANT WEATHERPROOF DEVICES

No. 3880 weatherproof convenience outlet with rubber mat and quick-clamp cover.



No. 4421 single pole weatherproof tumbler switch with rubber mat. (No. 4423 3-way.)

Home magazines today are saying a lot about the new era of "electrical living." They also point out the noticeable trend toward more and more "outdoor living." Smart builders and architects are combining both by providing *electrical living outdoors.*

Bryant weatherproof wiring devices are ideally suited for this development. Typical of the complete Bryant line, are the weatherproof tumbler switch (Catalog No. 4421) and the weatherproof outlet with its quick-clamp cover (Catalog No. 3880) illustrated here. The switch is also available in a 3-way type (No. 4423). Completely protected from moisture, these devices provide dependable outdoor service.

Recommend, sell and install these weatherproof devices for screened porches, terraces, outdoor fireplaces and the like to connect lamps, toasters, grills, mixers, bug killers, Christmas lights and other conveniences. And don't overlook the farm market where outdoor lights and electrical apparatus require weatherproof switches and outlets. Look for wiring dollars outdoors!

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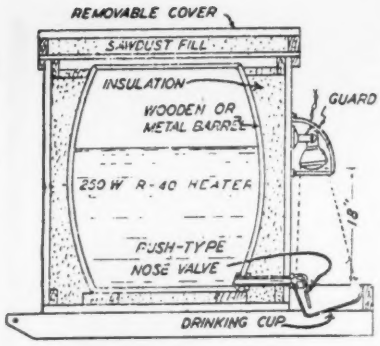
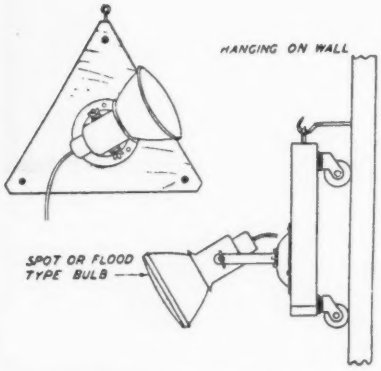


How infra-red lamp can be adapted to drinking trough for animals to prevent freezing of water.



Utility infra-red lamp on rollers. Placed under car or tractor, it will keep the oil warm and permit easy starting as well as prevent freezing. Eye hanger permits the unit to be hung conveniently on wall.

The heat lamp can be used in the pump house to protect it from freezing and to aid in keeping it dry. Frozen pipes can be thawed if the location allows the focusing of the heat lamps on the frozen area. Warming hot beds, heating green houses, or the ripening of fruits which require the combination of light and temperature is made possible by this equipment.

You can find many a spot for the R-40. A battery of heat lamps can be used to speed up a paint job that does not quite dry overnight, or the lamp may be mounted above a feed trough in the chicken house to keep wet mash from cooling off or freezing. The supplementary heat from the bulb will aid in the ventilation of the house and help to keep the litter dry.

A 4x4-foot chicken brooder can be heated by two, 150 R-40 bulbs placed in parallel sockets on opposite sides of the brooder rails as shown in the plan. Or you can quickly dry the separator parts, milk cans, and pails by mounting one or more of these lamps above the can rack or utensil tray.

Heat lamps are also being used for larvae and insect extermination. A spot-type bulb is a good flea chaser —and when used with care causes no discomfort to the dog.

The spot type R-40 can be mounted in an adjustable socket on a roll-around base for service in the farm shop or machinery shed. One of these lamps placed under the tractor, truck, or car engine will keep the oil warm, and thus make it easy to start, or will prevent freezing.

Contractors Find Opportunity In Farm Crop Drier System

MANY ELECTRICAL contractors may have noted the promise of vastly expanded rural electrification and a lush agricultural appliance market with the conclusion that this new market offers no profit possibilities for their business.

But in Texas an enterprising utility man with the help of an agricultural engineer has opened a field that can and no doubt will be cultivated by suppliers and contractors, individually and jointly.

This field is the installation of drier systems which, now well past the experimental stage, have enabled farmers to save thousands of dollars worth of crops, whereas, before the advent of the drier, a profitable harvest or a total loss depended on the whims of the weather.

This has been especially true of sections where the rainfall is heavy and the heavy rainfall belt extends well across the South. Even where rainfall is not such a factor, sponsors of the drier system point to a saving in time and controlled curing for a long list of crops.

The drier system as introduced and perfected in Texas under actual operation consists of two units. With one of these the contractor will not be concerned. It involves remodeling of the farmer's loft, or an installation in a building of his selection, which will provide for the movement of warm air under and through the crop to be dried. This is normally a job for carpenters.

Installation of the other unit calls for technique that is common contracting practice, but it also calls for equipment that neither the contractor nor the supplier is accustomed to handling.

First is a burner, using either butane or natural gas. The burner makes

Typical installation of butane burner drier system for curing hay and other farm crops. Note the useful portable motor.

available heat that is forced through the drier system by a suitable fan, all of this equipment being properly housed and precisely adjusted to the needs of the individual system.

That sounds rather simple, but let's have a word from B. H. Standley, the Houston utility man who pioneered the drier system.

"The equipment necessary includes belts, fan, motor, and burner," he says, "and where there is a dual installation, as is often the case, there is, naturally, a double market.

"But that is not all. There are automatic controls for safety that are considered absolutely essential and these controls alone run to approximately $50. Installation charges vary with the set-up, but they run up to $1,000, including all construction and equipment. Careful installation is essential because, for example, the fans must have speeds exactly suited to the requirements of the drier system.

"At first, there was difficulty in getting the equipment. At that time we were in the experimental stage and neither suppliers nor contractors were much interested. Now, however, there are dealers who handle the equipment and who will make installations. My principal concern now is to get contractors interested to the point where they will install a 'turnkey' job for the farmer."

Mr. Standley is convinced that there will be a great demand for drier systems, especially on big farms or plantations and that such prospects will prove highly attractive to the supplier or contractor.

This field, however, is still an infant. It has not yet attracted a manufacturer who offers a complete unit. It is still in the stage where inquiries are pouring in.

The first experimental drier system was installed on the farm of T. C. Scruggs, in Galveston County, Texas, in July of 1944 under the direction of Mr. Standley and Pete Montfort, the agricultural engineer. In the following 12 months, 20 more were installed, and many more were in the process of construction. By fall of last year the demands for information were swamping the sponsors.

An indication of the breadth of the field is contained in the fact that even in the first 12 months of the drier system these crops were cured: alfalfa, mowed and chopped; peanuts, peanut hay, oats, both in sheaf and threshed; milo and heagri in bundles; loose hay and threshed and dried in sacks; baled hay, soy beans, threshed rice in sacks, and others.

What does this drier system mean to the farmer Well, let's follow the processing of a hay crop. Hay is an important crop generally, so it should serve as a good example.

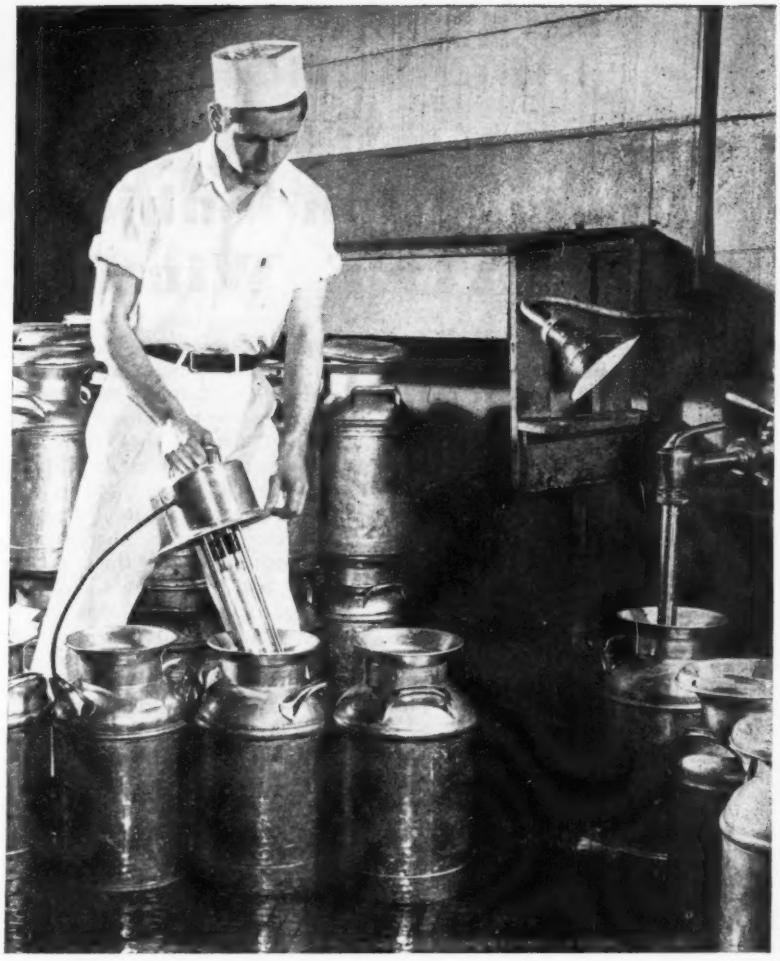
There have always been three disadvantages to the outdoor curing program. First, loss of leaves and seed by shattering as the product became dry and had to be handled from the windrow or shock to the wagon, then to the born loft, haystack or baler; second, damage by rain and continued heavy dews, many times even to the loss of the entire crop; third, loss of quality of hay by bleaching and burning by the sun in the field.

The principal of the haydrier is the furnishing of hot dry air by either butane or natural gas burners, forced by an electric motor and fan through a series of air channels over which the wet or green farm crop has been stacked from six to 10 feet high. As the dry warm air circulates through the hay or grain, the moisture content is rapidly reduced, the hay cures out a bright green color and as soon as properly dried by moisture tests, can be removed from the drying portion of the barn, baled and stored, while a new batch of green crop is put on the drier.

W. A. Frazier, Harris county, Texas, farmer, installed a drier and has this to say:

"After you have lost 200 acres of peanuts as I did in 1943 from wet weather, this new crop saver is really something. Under normal harvesting programs where I knew I could not save over 80 acres of peanuts due to

(*Continued on page 88*)



INVISIBLE RAYS GUARD MILK CANS—A new U-shape Sterilamp, which produces invisible ultraviolet rays, can reduce the bacteria count in washed milk cans 96 per cent in one minute, according to engineers of the Westinghouse Lamp Division, Bloomfield, N. J. The lamp and its special fixture are shown being inserted into a can by a dairy employe prior to filling from the bulk tank at the right. The tube, which consumes less electricity than a 25-watt electric light bulb, is suspended on springs inside a protective steel cage.

Distribution Subjects Covered At AIEE Winter Meeting

THE FIRST peacetime convention of the American Institute of Electrical Engineers, in more than four years, held in New York City, January 21 to 25, included 28 technical sessions and conferences, in addition to a general session and several inspection trips.

Featured particularly were many papers of practical interest to electrical engineers in the communication and power industries. Of particular interest from the distribution engineer's point of view were papers describing new thermal demand meter testing techniques; a new series capacitor protective device; and a new submersible network protector.

Presented by E. E. Lynch and M. E. Douglas, both of General Electric Company, the paper on demand meter testing had as its purpose the encouragement of development of short-time testing techniques which could be used on the customers' premises.

"Conventional test methods in the past," the authors reported, "have involved relatively long periods of load holding to bring the meters under test to thermal equilibrium for the calibration check and adjustment. With the increasing use of thermal meters, it is desirable to use some testing method which more nearly resembles tests on watthour meters. This article outlines three general methods for shortening the test time and leaves to the reader the choice of the method, or modification of it, best suited to his requirements.

"At the present time it is customary to return thermal demand meters to the laboratory for checking and calibration. The following or a similar step-by-step procedure is usually followed:

(1) Connect meters in "gangs" and apply potential to each for 2 to 24 hours.

(2) Check the zero reading and adjust if necessary.

(3) Apply load to be checked and hold constant for 45 minutes.

(4) Check the meter indication against the load held and adjust if necessary.

"A short test method for checking thermal meters should be a distinct advantage to electric power companies, particularly as a means of checking the accuracy of these meters on the customers' premises in relatively short periods of time.

"For a meter possessing the simple logarithmic response characteristic, mentioned previously, three general types of short test methods have been suggested and evaluated. While other methods and modifications may be developed particularly for meters having other than a simple logarithmic response, the three general types described herein provide an opportunity for large reductions in the testing time or man-hours for meters having this characteristic. The following terms have been coined to identify these three methods: (a) two-point method, (b) double-load method, and (c) thermal standard method.

"The two-point method is adaptable to testing on customers' premises. The use of a graph or tabulation can be used to simplify the procedure. The double-load method in one form is best adapted to testing single meters, while another form is more suitable for gang testing in the laboratory. The thermal standard method is usable on either "gang" or individual testing and is useful in its man-hour saving, although the elapsed time of test may not be materially shortened."

The following step-by-step procedure was suggested by the authors in the first variation of the two-point method:

(1) Reverse potential with a load applied until indicating pointer reads zero.

(2) Start stop watch and simultaneously apply a known load and hold it constant.

(3) At 3 minutes (or any suitable time depending on the charts set up) after the load was applied, read the meter indication. Continue holding load.

(4) At 15 minutes (or any other suitable time) after load was applied read the meter indication.

(5) Check the charts to find the ultimate indication of the meter—compare this with what the ultimate indication should be from the load held.

The second variation of this method requires the use of two stop watches which are started simultaneously with the application of the load. One watch is stopped as the pointer reaches 37% of load applied and the other is stopped when the pointer reaches 90% of the load. From the stop watch readings the ultimate deflection is determined from a chart.

The double-load method, as the name indicates, requires the application of double load to the meter under test for an interval of time followed by a short period of holding the test load. Two variations in the general method are apparent; first, the double load may be held for a specified length of time; or second, the double load may be held until a definite indication on the meter is attained. A step-by-step procedure for the first is outlined below.

(1) Reverse potential until meter reads zero indication. (Gang test meters will read zero at end of potential preheat.)

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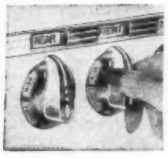
Another G-E exclusive! The No-Stain Oven Vent is cleverly placed away from the back wall. Carries most cooking vapors into an under-the-surface drip pan. Walls, curtains, ceilings stay brighter.



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(2) Apply double load for a specified time.

(3) Cut load to test load and hold constant for a specified time.

(4) Read meter and compare it with the load value being held.

(5) Make any adjustment necessary in the meter.

This procedure is adapted to gang testing of meters if desired, and the meter may be adjusted at the end of the test. The indicating pointer must be used during the test rather than the maxium demand pointer, since the indication at the end of the test may be lower than at the end of the double.

A step-by-step procedure for the second double-load variation follows the first except that the meter need not necessarily read zero at the start of the double load period, and the load should be reduced to the test load as soon as the meter reads the test load. Obviously, this procedure is suitable for testing only one meter at a time. It does allow adjustment of the meter at the completion of the check.

Thermal Standard Method

The thermal standard method requires the use of an accurately calibrated thermal meter of approximately the same response characteristics as the meter under test. Two variations of this method suggest themselves. The first is actually a combination of the double load and test standard methods. The second, which does not involve applying double load, conserves man-hours but does not appreciably reduce testing time.

Both variations of the thermal standard method are suitable for either single-meter or "gang" testing. Adjustments can be made on the meters at the conclusion of the test, since the test meters are at thermal equilibrium The indicating pointer must be used rather than the maximum demand pointer since load variation may cause a downward pointer movement during the test. The use of the accurately calibrated "standard" thermal meter eliminates the necessity for precise load holding, although reasonable limits must be maintained so that differences in the response time of the test meter and the standard do not introduce errors.

The sequence of operations for the procedure using double load is as follows:

(1) Reverse potential on test meter and bring reading to zero.

(2) Connect standard and test meter to same load.

(3) Apply double load to both meters until the "standard" indicates the value of the test load.

(4) Drop to the test load and hold approximately correct load for a specified time.

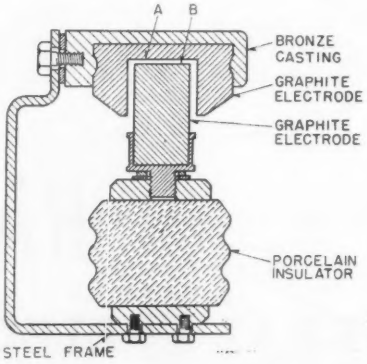
(5) Compare the reading of the standard and meter under test.

The second procedure is simply to connect the accurate, "standard" meter and the meter under test to the same load and leave them for three or more demand intervals, for example, 45 minutes for a meter used on 15-minute demand interval service. At the end of that time, the deviation of the reading of the meter under test from the standard meter indicates the error of the meter under test.

Capacitor Protector

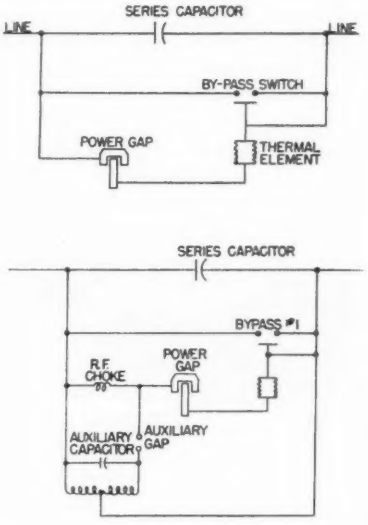
The outstanding feature of the new series capacitor protective device described by R. E. Marbury and J. B. Owens, both of Westinghouse Electric Corp., is a graphite gap with self centering arc characteristics. The authors report that a series capacitor is best protected from overvoltage during fault by a gap having low arc drop with no tendency to cut off. They also described a new type of by-pass switch for automatically by-passing the gap and series capacitor under fault conditions and for removing the by-pass after the fault has cleared.

The accompanying diagram shows the cross section of the special type of gap developed to insure a stable arc with a low arc voltage. The arc occurs between the surfaces A and B and is shielded from air currents by the upper electrode. Magnetic forces produced by the current traveling radially through the upper electrode are in such a direction as to keep the arc in the gap. Gaps of this design have been tested at currents up to 5000 amperes for one second and sustained no damage. The arc remained between the gap faces at all currents, and there was no tendency for the arc to wander down the sides of the lower electrode.



Shown here is a cross section of the new graphite gap developed to insure a stable arc with low arc voltage for the protection of series capacitors.

As the spacing of a gap is decreased, the variation in breakdown voltage on successive operations becomes greater. For dependable operation a gap should be adjusted to break down at not less than 3000 volts. Since the gap must function dependably at no more than twice the rated capacitor voltage, it cannot be used to protect a capacitor rated at less than 1500 volts unless an auxiliary means is provided to ionize the gap when the capacitor voltage reaches twice the rated value.



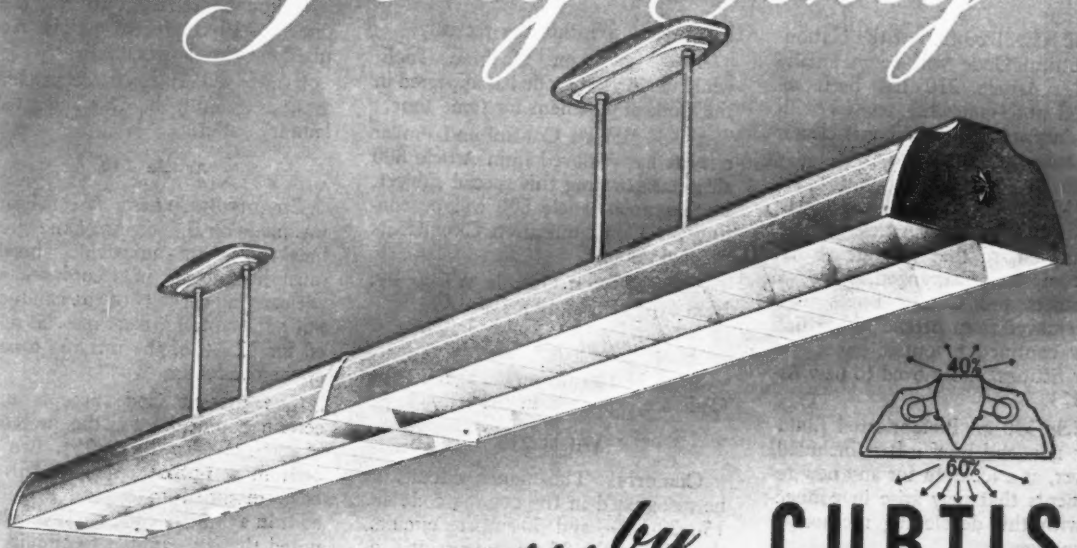
Connection diagrams showing how gap and by-pass switch are connected into the circuit for protection of series capacitors. Upper diagram is for voltage ratings above 1,500 volts; lower diagram, voltages under 1,500.

The connection diagram shows how the gap is connected into the circuit for protection of series capacitors. The upper diagram is for voltages above 1500; the lower diagram is for voltages below this rating. The by-pass switch shown is a thermally actuated toggle switch which has quick-make and quick-break action. The bellows which operates the switch is evacuated and charged with a small quantity of a liquid having a low vapor pressure at any ambient temperature which may be encountered in service. At such temperature the bellows remains collapsed because of external atmospheric pressure. When mounted in the switch, it is stretched to the normal length and exerts a pull more than sufficient to open the switch mechanism. When gap current passes through

(*Continued on page 88*)

ANNOUNCING

THE "Forty-Sixty"



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CHANGES FOR 1946 CODE DISCUSSED

IN PREVIOUS issues considerable discussion on the 1946 Code was presented based on discussions at the recent meeting of the Southern Section, IAEI. In this article, a more detailed discussion in order of Article numbers is presented. This material was prepared by Victor H. Tousley, outstanding Code authority and international secretary of IAEI.

THE NEXT edition of the National Electrical Code will be materially revised. Article 210 has been rearranged and somewhat revised with the main purpose of making it clearer and more easily understood.

With the introduction of new Article 310 on Conductors, a considerable portion of the old Article 300 has been moved, so that this article has been completely rearranged.

Cabinets and Cutout Boxes have been removed from Article 370, which is now confined to outlet boxes and similar fittings, and moved to new Article 373.

Article 390 on Prefabricated Buildings is new and brief. It is included, however, as a location for any new requirements that may arise in connection with this developing method of construction.

Article 410 is completely rewritten and now combines old Articles 410 and 420. It contains specifications on the newer methods of illumination.

Article 422 now includes the major changes brought about by infra-red drying.

Article 450 is entirely rewritten following comments of difficulty made by the inspector organizations. There has been combined in this article several changes to recognize industrial network systems.

Article 500 on Hazardous Locations has been entirely rewritten and the fundamentals have been changed to recognize in each class of hazard two divisions: one representing a hazard such as has been recognized in Article 500 of the 1940 Code, and another division where the hazard is not so pronounced and where modified types of apparatus may be used.

Article 510 has been modified to recognize such installations as airplane hangars, gasoline dispensing and service stations, and bulk-filling stations.

A new Article 630 covers Welding, a subject that has had much discussion by inspection authorities recently.

Article 670 on Machine Tools, while new in the Code has appeared in the Code supplement for some time.

Article 725 on Control and similar circuits has removed from Article 800 all items covering this special subject, so that now Article 800 will be confined to Communication Circuits, its original subject.

Article 730 on Outside Wiring has been expanded and modified.

Some of the Changes

Some of the major changes in the Code are explained in the following:

Article 210

CIRCUITS. The branch circuits to be recognized in the coming code are 15-, 20-, 30-, and 50-ampere circuits, the 25- and the 35-ampere circuit having been eliminated.

POWER FACTOR. Power factor is recognized in the following statement. "In computing the load of lighting branch circuits which employ ballasts, transformers or auto-transformers, the load shall be based on the total amperes of such units and not on the wattage of the lamps."

VOLTAGE. The voltage of the branch circuit has had considerable discussion. The interim amendment which has been in effect for some time practically eliminated the circuit voltage limitation in industrial occupancies. This has now been changed to read: "In industrial establishments, branch circuits supplying only lighting fixtures with other than screw-shell lampholders, approved for the application, mounted not less than 8 feet from the floor and which do not have switch control as an integral part of the fixture, the branch circuit voltage shall not exceed 300 volts to ground."

COLOR CODE. The Electrical Committee voted to retain the color coding of conductors in the coming code.

COMMON NEUTRAL. The recognition of the common neutral for branch lighting circuits, as recommended by the Article Committee, was rejected by the Electrical Committee and will not be recognized in the new code. This does not apply to feeders.

RANGE CIRCUIT. Two No. 8 and one No. 10 conductor will be recognized for the range circuit.

LAUNDRY. A 3-pole receptacle for grounding must be installed at the laundry outlet.

Article 240

CIRCUIT-BREAKERS. A clarification was made on the setting of the circuit-breakers. Non-adjustable breakers must be selected in accordance with the carrying capacity of the conductor, but adjustable breakers may be selected for 125% of the carrying capacity of the conductor.

The present Code accepts under certain conditions for the protection of circuits (See Table 28), two trip coils in a 3-phase circuit. This has been modified to require three trip coils in a 3-phase circuit. It should be noted that this applies to circuits and not to the running protection of motors.

TYPE S FUSE. The Type S fuse becomes mandatory with the next edition of the Code. The proposal to provide for a different current classification of Type S fuses was not accepted by the Electrical Committee.

Article 250

The minority report on Grounding was withdrawn. Sections 2523 and 2524 which permit—and in certain cases require — the interconnection with the grounded wire in buildings served by a master service, was adopted. The grounding of range frames on the neutral will be recognized in the next edition of the Code.

The resolution on the appointment of a special committee to give consideration to the grounding of portable equipment was adopted, and this subject was referred to the Article 250 Committee for action.

Article 300

FINE PRINT NOTE. The fine print

(*Continued on page 70*)

Every Housewife is a Prospect for..

BROILKING

Every woman who cooks will find in BROILKING an amazing appliance, the usefulness of which she will not realize until she has tried it. No other cooking appliance in her kitchen will do so much, at so low a cost, in so little space, with a minimum of trouble and inconvenience.

MR. DEALER, before the war BROILKING was a fast-turning, profit appliance, sold by the best retail outlets in America. Today, nation-wide, BROILKING again has the call from wholesaler and dealer alike. Improved in materials and production processes the new "Reliable Regent" model at *prewar prices* is the best buy in table broilers.

The "Reliable Regent" Hinged Model

★ WHAT IT WILL DO ★

Broil a meal for 4 right on the table!

Holds 4-6 chops large steak
whole broiling chicken 4 fish filets
12 sausages or frankfurters
9 hamburgers

HOW IT IS MADE

★ *Drawn steel shell—triple plated.*

★ *Cord and plug set of cold mold—for higher heat resistance.*

★ *Improved refractory materials.*

★ *Detachable hinge cover.*

★ *Bakelite heat-resistant accessories.*

All at the popular, pre-war price!

BROILKING

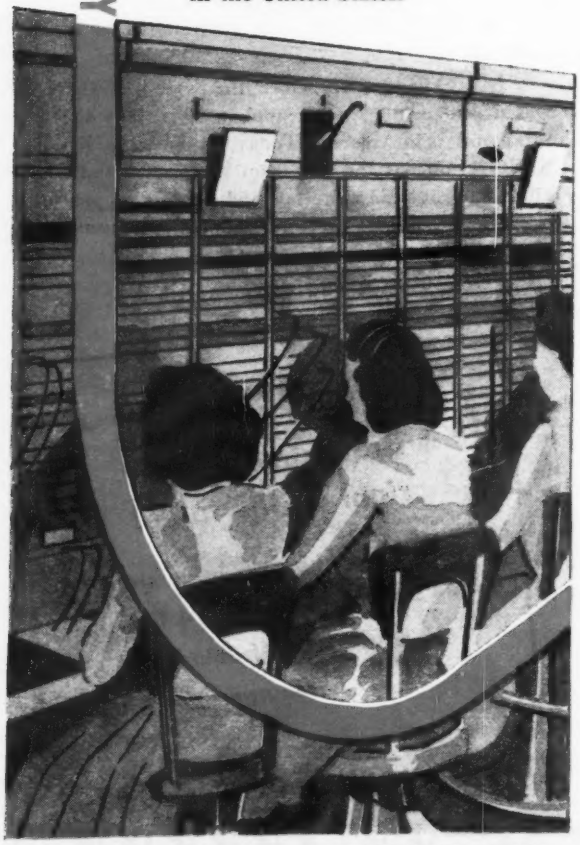
AMERICA'S FINEST ELECTRIC *table* BROILER

INTERNATIONAL APPLIANCE CORP., ***1041 Metropolitan Avenue, Brooklyn 6, N. Y.***

OVER 17000 TIMES A DAY

Atlanta Calling

More than 17,000 times a day "Atlanta Calling" goes over the wires from the country's largest single long distance operating room and 812 long distance operators handle calls that rank Atlanta as the fifth largest switching office in the United States.



Atlanta

ELECTRICAL AGENTS

10 Year Club

Catalogs, Bulletins and Technical Data Available to Readers of Electrical South

101—Industrial Brush Catalog. Catalog No. 95, a new publication on industrial brushes, is now ready for distribution, the Helwig Company, 2544 North 30th St., Milwaukee 10, Wis., has announced. This catalog gives a complete description and characteristics of the various grades and styles of carbon brushes available.

102—Booklet on Mill Equipment. Slasher drives, lint-free motors, loom motors, and other electrical equipment for the textile industry are described in a new booklet (B-3466) announced by the Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa. The 20-page illustrated booklet pictures actual installations of horizontal and vertical motor drives for openers, pickers, and cards. Specially designed lint-free motors for maximum production from spinning frames are discussed.

103—Lighting and Control Equipment. A concise treatment of "Engineered Lighting and Control Equipment" is covered in a recently published 8-page catalog, Number 945, by the Hubbell Electric Company, 229 W. Grand Ave., Chicago 12, Ill. Photographs and detail drawings amplify the text; specifications and engineering details are also included. The primary purpose of the pamphlet is to offer the architect, consulting engineer, lighting consultant, electrical contractor, and electrical jobber a condensed coverage of the field.

104—AmerTran Price Folder. An up-to-date price list of AmerTran ballasts for fluorescent lighting has been published in folder form by the American Transformer Company, 178 Emmet Street, Newark 5, New Jersey.

105—Sealedpower Motors. A four-page bulletin just issued by the Crocker-Wheeler Divson of Joshua Hendy Iron Works, Ampere, N. J., describes the company's Sealedpower motor. An exclusive design, the Sealedpower motor was developed for use in dusty locations, in places where there is excessive moisture, and for all applications where the conventional alternating-current totally enclosed, fan-cooled motor has been used in the past. It is available in sizes from 2 hp. to 15 hp.

106—Marion Instrument Catalog. Marion Electrical Instrument Company of Manchester, N. H., announced a short time ago that their new comprehensive catalog was to become available on or about January 15, 1945. This 28-page book illustrates and describes the Marion line of standard and hermetically sealed electrical indicating instruments.

107—Thermocouple Bulletin. The Wheelco Instruments Co., of Chicago, has just issued a 32-page bulletin, No. S2-6, which gives information on selection of proper thermocouples and installation aids, describes and lists prices and recommendations on thermocouples, thermocouple wire, lead wire, plug and socket assemblies, etc.

108—Constant Voltage Transformers. A new bulletin, "Electrical Power, Disciplined," just released by Sola Electric Company, contains a complete discussion of the construction and operating theory of the constant voltage transformer, engineering and operating data, a survey of line conditions that make constant voltage transformers necessary, and a section devoted to new developments resulting from the company's war-time experience. The catalog section lists 31 standard types in capacities ranging from 15VA to 10,000VA with complete electrical and mechanical specifications.

ELECTRICAL SOUTH,
1020 Grant Building,
Atlanta 3, Ga.
Gentlemen:
Please send me information indicated below.
(Circle numbers of publications desired.)
February 1946

101	102	103	104	105
106	107	108		

(Print Plainly)

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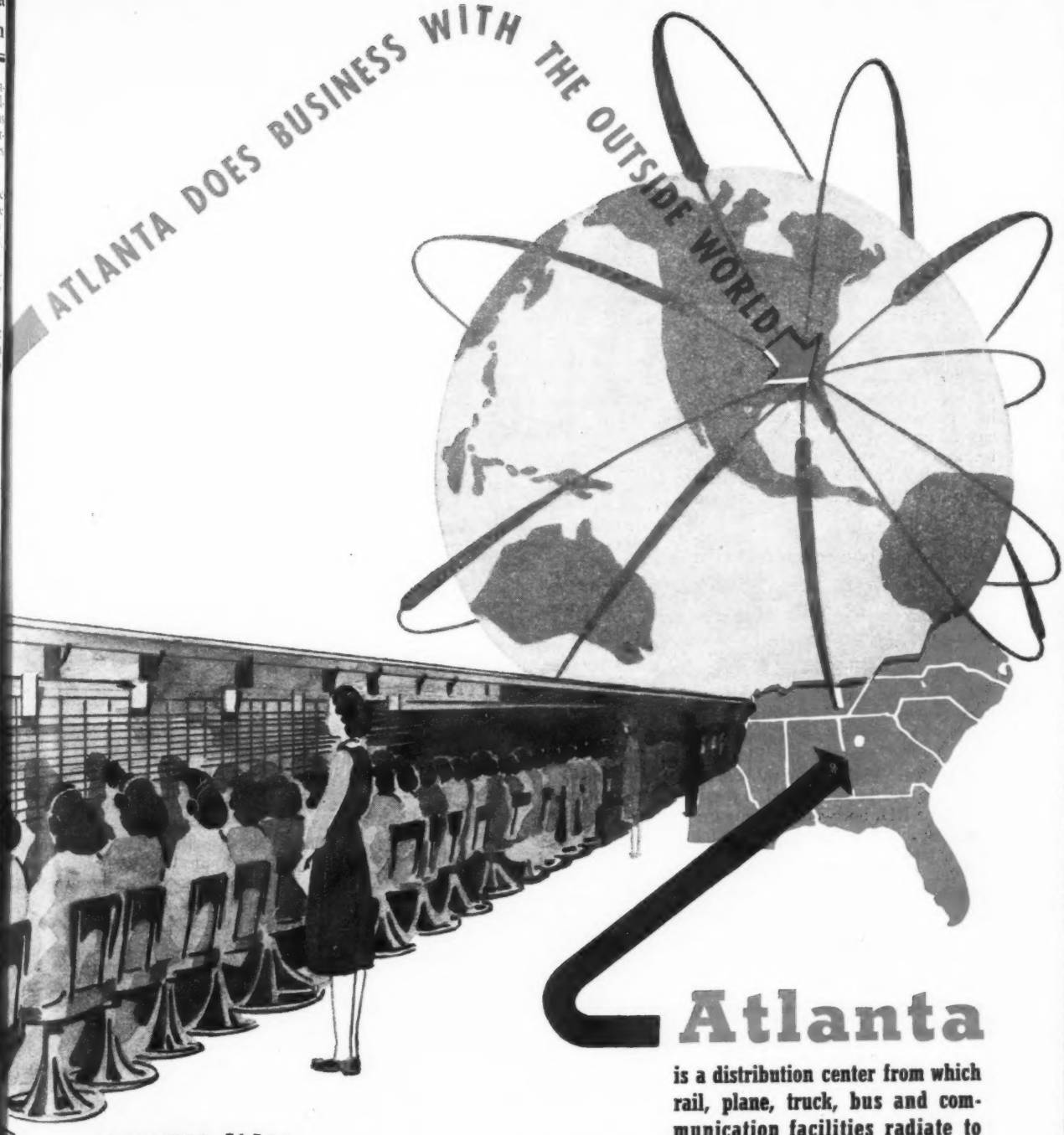
City & State.....



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is a distribution center from which rail, plane, truck, bus and communication facilities radiate to bring the world in closer touch with one of the country's greatest concentrations of manufacturers, division offices and warehouses. Do business where there is business.

ATLANTA ELECTRICAL AGENTS 10 YEAR CLUB

note that appears at the head of Article 300 was clarified by adding the word "network" as applied to the underground metallic water piping system.

WIRES OF DIFFERENT SYSTEMS. This was clarified by recognizing "Secondary wiring to electric discharge lamps under 1,000 volts may occupy the same enclosure as the branch circuit wiring."

EXPANSION JOINTS. The committee's proposal for taking care of the expansion of conduits due to varying temperatures received a considerable discussion, but the Electrical Committee decided the subject needed more study. A note on the subject will appear in the coming Code.

WIRING PASSING THROUGH METAL. The committee's proposal for wires carrying alternating current where passing through sheet metal, which has received much comment, was cleared up by the Electrical Committee, and the 50-ampere limitation will now apply only where a single conductor passes through a sheet metal enclosure.

BARE NEUTRAL FEEDER. The recognition of a bare neutral feeder for rewiring existing buildings, which was presented by the Article Committee but not recommended, was rejected by the Electrical Committee.

Article 310

CONDUCTOR SIZES 7 AND 9. Conductor sizes No. 7 and No. 9, as recommended by the Article Committee, were not accepted by the Electrical Committee. Two types of rubber-covered wire will be recognized, Type R and Type RH, both with varying carrying capacities as shown in the following table.

TYPE T WIRE. Types T and TW wires came in for an extended discussion as a result of which the whole subject was referred to a special committee for a later report. As a result of this committee's consideration, Types T and TW wire will be accepted as follows:

For Types T and TW:

For Open Work. Up to and including 2,000,000 c.m.

For General Use (including armored cable and non-metallic sheathed cable). Up to and including 4/0.

For Conduit and EMT. Up to and including 4/0 when installed for new work. Table 4 in the 1940 Code to be used for new work, and rewiring in existing raceways will be in accordance with the last line of Table 11. 50% for more than four wires.

SIZE OF CONDUIT. Where the thinner insulations are recognized on No. 14 and No. 12 conductors, conduit must be selected in accordance with the 1940 Code. This will result in some excess capacity where these thinner insulated wires are used.

Article 320

The question of the separation of conductors for voltgaes 300 to 600 came up in connection with Interim Amendment No. 71 on sections 3205 of the 1940 Code. The committee finally decided to accept a separation of 2½ inches for these wires provided the supports were not over 15 feet apart, and provided further that the conductors were provided with separators between the conductors spaced not more than 4½ feet apart.

Article 324

THERMAL INSULATION. Sections 3249 and 3370 on thermal insulation for concealed knob-and-tube work and for non-metallic sheathed cable, were deleted from the Code.

Article 346

The proposal of the Article Committee for the distance apart of supports for conduit work and for electrical metallic tubing received a good deal of discussion, following which the Electrical Committee decided to go back to the 1940 Code requirement as specified in section 3040.

Article 354

The Code has heretofore recognized underfloor metal raceways not over 2 inches wide laid flush with the finished concrete floor. This has been changed and the next Code will recognize a metal raceway not over 4 inches in width used for signal wires, and a metal raceway not over 2 inches in width used for lighting and power circuits, laid side by side flush with the finished floor. These two raceways must be spot welded together.

Article 364

Interim Amendment No. 76 has recognized a branch busway attached to a main busway without overcurrent protection at the point of tap, provided the tap busway had at least one-third the carrying capacity of the overcurrent device on the main busway. The Electrical Committee has revised this to apply to a branch busway not over 50 feet in length.

Article 370

The proposed amendment to section 3703 which required the use of non-metallic boxes where a continuous underground water piping system was not available for grounding, was rejected by the Electrical Committee.

Article 410

As has been stated, Article 410 on Fixtures was completely revised. The report printed in the Advance Article Committee Reports was not considered, as the Article Committee submitted to the Electrical Committee a complete supplementary report on this subject. Many important features were considered, among which were the following.

IN DWELLINGS. Equipment having an open-circuit voltage of more than 1,000 volts shall not be installed in dwelling occupancies. Equipment having an open-circuit voltage of more than 300 volts shall not be installed in dwelling occupancies unless such equipment is so designed that there shall be no exposed live parts when lamps are being inserted in place or being removed.

IN OTHER THAN DWELLINGS. The Article Committee's supplementary report provided that lamps in other than dwelling occupancies should have the same protection so far as live parts are concerned as lamps in dwellings. This point received an extended discussion and was finally referred to a special committee to report. This

Table 1

AWG	R RW RU 14-8 T TW	RH	Insulation Thickness R & RH only
14	15	15	2/64
12	20	20	2/64
10	30	30	3/64
8	40	45	4/64
6	55	65	4/64
	RP values in 1040 Code	RH values in 1940 Code	
2,000,000	560	665	8/64

Table 2

R RU 14-8 T TW	RH
20	20
25	25
35	40
55	65
80	95
RP values in 1940 Code	RH values in 1940 Code
1155	1385

committee later reported that this provision of the Code should become effective one year after the next code becomes effective, the provisions of present section 6013 to be effective in the meanwhile.

TRANSFORMER RATINGS. Transformers and ballasts shall have a secondary open circuit of not more than 15,000 volts with an allowance of test of 1,000 volts. The secondary current rating shall not be in excess of 240 milliamperes. When the open-circuit voltage exceeds 7,500 volts, the secondary current rating shall not be in excess of 120 milliamperes.

FIXTURES CONNECTED BY ATTACHMENT CORDS. The original committee report prohibited the connection of a fixture by means of a flexible cord and an attachment plug. The Electrical Committee revised this to accept such connection where cord equipped fixtures are suspended directly below an outlet box and the exposed cord is not subject to strain or mechanical injury.

Article 430

Motors now cause approximately one-third of the reported electric fires. The Article 430 Committee has revised the code to accept devices integral with the motor which are responsive to motor current or both motor current and temperature.

NEC Official Interpretations

Section 2612-a. Bolted Flange Coupling in Water Pipe Electrode. Interpretation No. 268. Issued September 5, 1945.

QUESTION. Does the finding of Interpretation No. 212 permit acceptance of bolted-flanged pipe fittings without bonding jumpers as well as of threaded couplings in a water pipe line used as a grounding electrode? (Cross reference to Interpretation No. 212).

FINDING: Yes, if in the run of the water pipe is not a part or parts of the meter or service union assembly.

Section 2106. Taps to Branch Circuits. Interpretation No. 269. Issued October 4, 1945.

STATEMENT: Underwater and general illumination for a swimming pool is to be supplied from 35-ampere branch circuits. Taps to individual fixtures are to be of No. 12 conductors and will average about 24 feet in length.

QUESTION: Are such taps permitted by the text of section 2106 or do the limitations of sections 2403 and/or 2434 apply?

FINDING: Section 2106 should apply. No limit to length of such taps is specified.

We Appreciate Your Patience, T-K Dealers!

All during the turbulent war years, we did our level best to keep on shipping as many T-K replacement electric range units as we possibly could—and *succeeded* better than many others!

Now, despite our best efforts—and certainly despite our eagerness to meet the heavy demands for T-K laboratory-tested units—we are able to ship only a modest percentage of orders flagged "Immediate Shipment." We want you to know we will continue to ship units as fast as we can build them, consistent with our rigid quality standards.

We appreciate your patience, and look forward to the day when we can ship all orders promptly on schedule. Meanwhile, we hope you will order only such quantities as you absolutely need for current requirements.

TUTTLE & KIFT, INC.

1825 NORTH MONITOR AVENUE • CHICAGO 39, ILLINOIS

MANUFACTURERS: DOMESTIC AND INDUSTRIAL HEATING UNITS • SWITCHES • CONTROLS

NEWS of the INDUSTRY

Houston Electrical Board Reorganized by Council

THE CITY Electrical Board of Houston, Texas, which has been accused in the past of giving "stiff" examinations to applicants for master electrician's licenses to keep down competition, was dissolved recently by the city council, and a new board is being organized.

On the recommendation of Councilmen O'Banion Williams and Ward Farrington, the council voted to set up a new board. An electrical engineer, to be hired by the city and previously scheduled to be secretary for the three-man board, will be a member of the board instead. He will replace the director of utilities, previously slated for a post on the board. Other members of the board will be the city director of public works, and a faculty member of either Rice Institute or the University of Houston.

Under the new set-up, applicants for master electricians' licenses also may take the examination as often as they desire, if they fail to pass, instead of waiting 90 days between the second and third examination as required previously.

The council also agreed to eliminate oral examinations for applicants for master electrician licenses, making written examinations compulsory.

Electric Association of Kansas City Has Election

OFFICERS and directors of The Electric Association of Kansas City for 1946 were unanimously elected at the annual meeting held on December 20, with Walt Frazier, of Graybar Electric Company, selected as president.

Vice-presidents of the Association include the follows: Utilities Division, C. Myron Lytle, K. C. Power & Light Co.; Manufacturers Division, A. A. Dahms, Allis-Chalmers Mfg. Co.; Electrical Wholesalers Division, J. W. Puckett, General Electric Supply Corporation; Electrical Contractors Division, Fred E. Geiss, Fred E. Geiss Electric Company; Electrical Appliance Dealers Division, E. J. McGrannahan, Jenkins Music Company; and Maintenance, Repair, and Service Organizations, John E. Launder, Independent Electric Machinery Co.

Harley C. Davis, of K. C. Power & Light Co., was elected secretary-treasurer.

Directors include Jack Boring, Kansas City Appliance & Furniture Co.; R. B. Brownlee, Missouri Valley Electric Company; G. V. Dameron, E. L. Fickie Electric Co.; J. A. Ekstrom, Glasco Electric Co.; George Fiske, General Electric Co.; W. F. Howe, W. F. Howe & Co.; Asher C. Jones, Sylvania Electric Products, Inc.; John A. Kramer, Kansas City Power & Light Co.; Chris E. Null, Southwestern Bell Telephone Co.; Fred A. O'Donnell, Continental Electric Co.; H. H. Kuhn, Kansas City Power & Light Co.; and C. G. Roush, Westinghouse Electric Corp.

Bendix Radio Purchases Maryland Plant from DPC

W. P. HILLIARD, general manager of the Bendix Radio Division, Bendix Aviation Corporation, announced in Baltimore recently that Bendix Radio Division has completed plans to purchase its Towson plant from the Defense Plant Corporation for approximately $1,700,000 and has already started additions and improvements that will cost another $500,000.

"Acquisition of this plant and these additions and improvements are in line with our program for volume manufacture of quality radios, radio-phonographs, and communication equipments in Baltimore," said Mr. Hilliard.

Built in 1940 by the Defense Plant Corporation, the Towson plant has been leased by Bendix Radio since that time with an option in the lease permitting the company to purchase the property. (See drawing below.)

"We are merely exercising our option, and I believe that we are one of the first large manufacturers in this area to do so," said Mr. Hilliard.

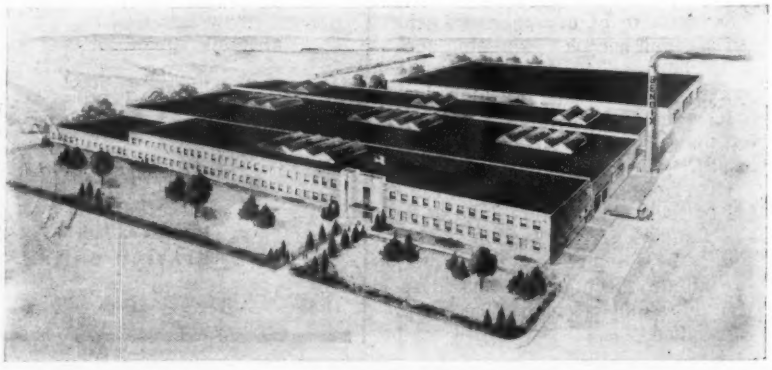
The purchase includes the main building with 215,000 square feet of floor space, an annex with 15,000 square feet, a parking lot, water tower, and specialized machinery.

Within a few months as deliveries of components get underway, the manufacture of Bendix radios and radio-phonographs for use in the home is expected to be the major activity at the plant. Mr. Hilliard estimated that this line of consumer products would comprise 60 per cent of the company's dollar volume of business.

Advance showings of the complete line of 24 models, including plastic table radios, wood table radios, console radios, table combinations and floor model combinations, featuring the exclusive Bendix "Swingadoor" record changer, and a wide choice of chassis, have just been made to large dealer groups in New York and Chicago. "These advanced showings have been received very enthusiastically," states L. C. Truesdell, general sales manager, Radio and Television, "and every effort will be made to facilitate shipment of sets to our 62 distributors and their 8,000 franchised dealers during these next few weeks. A rapid increase in daily output of sets is scheduled as our suppliers, cabinet and component manufacturers, complete their reconversion from war production and begin to ship in quantity."

Electricity Promoting Modernization of Farms

RURAL building and farm modernization is at the threshold of extraordinary progress through electrification and installation of many types of household appliances as well as farm machinery operated with electricity, according to a survey of activities throughout the United States reported recently at a meeting in Milwaukee of more than 125 field engi-



neers and representatives of Square D Company.

Basing their estimates of the activity ahead on the rapidity with which rural electrification is advancing, the field managers and engineers reported that with farmers today financially better able to satisfy their desires for modern equipment, factories making units are oversold already. It was pointed out that demand for electrical switches for the farm market have multiplied four times in the last seven months.

Square D branch managers from the more important agricultural areas of the nation said that farmers are preparing not only to completely modernize their farms but also to invest large sums in new buildings.

In the so-called working department of the farm, old buildings are being equipped with modern electrical machinery, water systems and other types of equipment to provide greater sanitation and ease of work. Electrification is made more necessary also by the trend toward consolidation of smaller farms which means the farmer must be able to do more work with less effort.

Farm homes, it was reported, will benefit from electrification, because today's farm wife requires work saving kitchen and laundry equipment and a freezer unit.

Square D estimates show that of America's approximately 6,000,000 farms, half are electrified to the extent of lighting, and of the remaining half, more than 90 percent have electric power lines within one quarter mile.

The spread in electrification, it was shown, is such that both central station companies and government agencies engaged in rural work are specifying heavier equipment because of the increased loads to be put on the lines by each user, in comparison with original farm electrification which included little more than lighting.

Florida Power Corp. Expands Departments

LONG planned as one of the major steps in the utility's postwar plans, the Florida Power Corporation with headquarters in St. Petersburg, announced the formation of three major departments to handle the increased demand for electric service in their territory.

D. B. Hyer, Jr., was named to head the newly formed Industrial Development Department. He has been associated with the utility for 20 years. Under the direct supervision of Mr. Hyer, who is a graduate of Georgia School of Technology, a group of

America's most exclusive iron!

Back soon—the famous NEVER-LIFT with exclusive features—proven popularity—national promotion.

Now in production, the famous Proctor Never-Lift will soon be on the way to you. It's the iron with the *most* exclusive features—"Push Button Ironing"—"Even Heat" *plus* these other Proctor Firsts...Fabric Dial, Speed Selector and the all-around Proctor Dreadnaught Heating Unit.

The Never-Lift is outstandingly distinctive on your shelves—easily recognized—a top quality, top profit iron. It's coming soon with a powerful coordinated program of national advertising and promotion.

AVAILABLE NOW!

These fine appliances are being shipped to distributors as fast as we can make them! Order from your distributor today.

PROCTOR CHAMPION SPEED IRON. "Even Heat" over entire ironing surface means faster, easier, better work. Fabric Dial.

PROCTOR SILENT AUTOMATIC TOASTER. Handsomely designed . . . automatically makes toast evenly browned to your taste.

It's new... it's exclusive... it's

PROCTOR

AUTOMATIC ELECTRIC APPLIANCES

PROCTOR ELECTRIC COMPANY, PHILADELPHIA 40, PENNSYLVANIA

industrial power engineers will work with managers of all divisions to assist industrial customers with their expansion plans in addition to interesting other industrialists in locating in the territory served by the company.

W. B. Shenk, former assistant new business manager of the Florida Power Corporation and a graduate engineer, is scheduled to head the Commercial Development Department. With a full complement of trained experts, this department has geared its planning toward keeping commercial acceptance of electricity at the high peak it has enjoyed in the territory served by the company.

Heading the Residential Development Department to care for the expanding needs of the tremendous postwar market is R. H. Giedd, long associated with this type of activity. With an active dealer and sales promotion plan to be announced soon, this new department is starting the first peace-time year with high hopes of maintaining its record of above average domestic acceptance of all-electric service.

With all three departments reporting directly to the vice-president, J. F. Bailey, the activities of each will be closely coordinated to assist one another and thereby maintain complete coverage of the electrical market in the area served by the utility.

Union Electric Co. Shares Appliances

UNION Electric Company, of St. Louis, Mo., have allotted their share of electric appliances to other appliance dealers in the territory they serve and announce that temporarily they are out of the appliance business.

"The business of many of the electrical appliance dealers has been drastically reduced by the wartime shortage," a company statement said. "We are anxious to help these dealers, many of whom are war veterans, get back into the appliance business as quickly as possible. We are convinced that it is to the best interests of the community to have many strong, successful dealers to serve it."

Tiller Sends Miniature Franchise to Dealers

A. R. TILLER, president of A. R. Tiller, Inc., Richmond, Virginia, recently received the Proctor franchise from Walter Kelly, Proctor district manager. Mr. Tiller announced his appointment to his dealers by sending them a miniature of his franchise for their files.

The miniature franchise was inserted in a letter written to the dealers. The letter itself was written on special stationery, having a gray background with red lettering, featuring the Proctor name prominently.

Tiller, Inc., followed this with the mailing of a full-page Saturday Evening Post reprint in color of the Proctor Never-Lift iron. On the back of this reprint was a message from Tiller, Inc., to their dealers calling attention to Proctor's "pulling power proven advertising."

Local Electric Industry Blocks Gyp Salesmen

UNITY of elements interested in the welfare of the electrical business in Shreveport, La., was demonstrated recently when outside interests advertised in a local newspaper for salesmen for fluorescent fixtures.

The advertisement was small, but it was black and its language made glowing promises to salesmen, concluding with the admonition that prospective salesmen need not apply unless they considered themselves capable of earning $10,000 a year.

Shreveport interests considered the advertisement a threat to the local market and the advertisement was answered from two sources.

The Southwestern Gas and Electric Company bought newspaper space four columns wide by ten inches deep in both morning and afternoon editions and warned Shreveport citizens against "Fly-by-Night Lighting Salesmen."

The text of the advertisement continued:

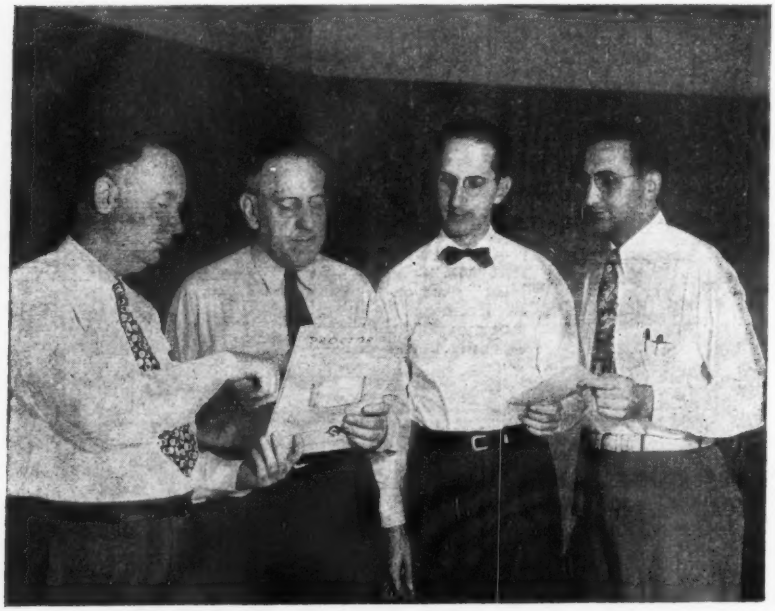
"Indications are that fly-by-night fluorescent lighting salesmen will again become active in Shreveport.

"These salesmen will have their office in their hip-pocket, and will attempt to sell the sub-standard fixtures at bargain prices. Before you buy fluorescent fixtures, you are urged to thoroughly investigate the products.

"Like all good electric companies, Southwestern Gas and Electric Company will serve only standard fluorescent lighting and similar equipment. Inferior fluorescent lighting fixtures waste approximately 50% of the capacity of the entire electric channels supplying them.

"All electric dealers, distributors and contractors established in Shreveport sell and install approved fluorescent light fixtures and similar equipment. So don't let a hip-pocket lighting salesman sell you an inferior product.

"For your own protection before you buy fluorescent fixtures from a salesman, find out whom he is representing. If he is from out of the city, consult your electrical dealer or contractor, or this company, and have



A. R. Tiller, president of A. R. Tiller, Inc., Richmond, Va., receives his Proctor distributor franchise from Walter Kelly, Proctor district manager, while Alfred P. Dodge, his vice-president in charge of sales and Paul Coolidge of Proctor look on. A progressive distributor, Mr. Tiller announced his appointment to his dealers by sending them a miniature of his Proctor franchise.

the salesman's merchandise examined and tested. To take this precaution will save you the time, inconvenience, and money."

On the heels of this advertisement, Tom L. Evans, manager of the Ark-La-Tex chapter of the N.E.C.A., inserted two column by four inch space in morning and afternoon editions. This read:

"Notice to the Shreveport buying public of electrical appliances and fluorescent fixtures.

"The National Electric Code and the City of Shreveport Electrical Ordinance are the standards of electrical quality.

"Therefore, we wish to urge the public to contact your electrical contractor, your electric company, or the undersigned, who are competent to judge the quality of electrical merchandise."

Appalachian to Test Untried High Voltages

Plans to build 8,000 feet of lines to test the feasibility of transmitting electricity at heretofore untried voltage have been announced by the Appalachian Electric Power Company, of Huntington, W. Va.

S. A. Wills, Huntington district manager, said the lines would be built at Brilliant, in Jefferson County, Ohio. Attempts will be made to transmit at voltages in excess of 500,000. He said that electricity has never been transmitted previously at more than 287,000 volts for practical purposes.

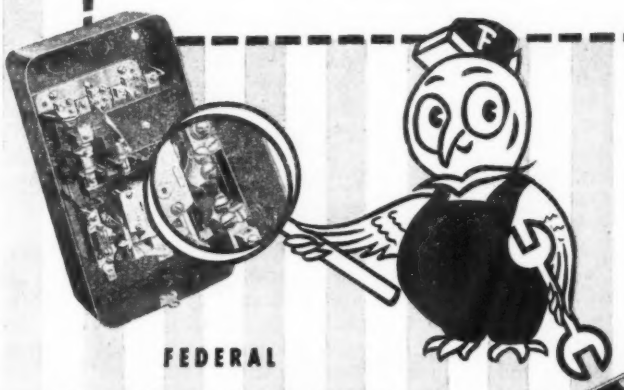
"It will mean," he said, "exploration of electrical phenomena beyond present engineering knowledge." He added that elaborate equipment to record the tests and to protect those working on the project was being designed.

Home Appliance District Managers Hold Meeting

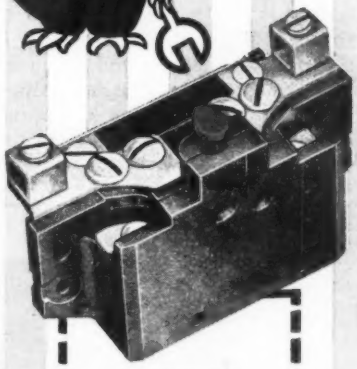
PREPARATORY to establishing national home appliance distribution, newly-appointed managers of 13 field sales districts met with Roscoe E. Imhoff, manager of the Home Appliance Department of General Mills, Inc., at a five-day conference recently in Minneapolis. This was the first conference concerning the new home appliances since General Mills announced its postwar entry into the home appliance field.

Under discussion at the five-day meeting were the features of the new home appliances and the proposed procedures for selecting distributors

FOR FOOL-PROOF SAFETY EVERY TIME
IN CUTTING MOTORS FROM THE LINE,
THIS FEDERAL RELAY DOES THE TRICK
WITH THOSE WHO KNOW—
IT'S BOUND TO CLICK!



FEDERAL
OVERLOAD RELAYS
STANDARD EQUIPMENT ON
Federal NOARK
MAGNETIC
MOTOR STARTERS



Wherever overload protection is needed . . . whether on new or existing installations . . . Federal's Overload Relays will provide the "plus-margin" of dependability generally associated with Federal products. Naturally, these relays are built into Federal Noark Magnetic Starters . . . but remember, too, that they're available for your special applications. Federal Overload Relays provide conveniently located load and control circuit terminals, often making additional terminal blocks unnecessary.

DESIGNED FOR AUTOMATIC OR MANUAL RESET

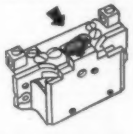
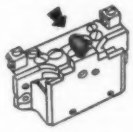


Diagram shown above illustrates Plunger (arrow) set for "automatic" reset.



Plunger is set for "hand" reset in above diagram.

FEDERAL ELECTRIC PRODUCTS COMPANY, INC.
EXECUTIVE OFFICES: 50 PARIS ST., NEWARK 5, N. J. • PLANTS: HARTFORD, CONN. • NEWARK, N. J.

who will insure complete retail coverage throughout the country. Advertising and promotional programs were reviewed, and district managers were familiarized with the research facilities of the Home Service Department of General Mills and introduced to Betty Crocker, who will sponsor the home appliances.

"Wiry Joe" Manufacturers Hold Annual Sales Meet

THE FIFTEENTH annual sales meeting of the Crescent Company, Inc., Pawtucket, Rhode Island, manufacturers of Wiry Joe wire and cable, was held in the Hotel Stevens, Chicago, recently.

Keynote of the sales meeting was the complete advertising and merchandising plan for 1946, which, actually, was put into operation immediately the war ended. It was pointed out that this was made possible by careful planning and forward thinking on the part of the Crescent organization during the war.

This new advertising and merchandising plan includes: the new Wiry Joe catalog, with its more helpful data; the new, attractive packages for Wiry Joe battery cables, ignition sets, and spooled wire; numerous product improvements; and the continuation of the management's policy of distributing Wiry Joe wire and cable through automotive wholesalers exclusively.

Milton C. Sapinsley, president of the company, welcomed back two recently discharged veterans: Captain Jim Wernert, and Sergeant Sterling W. Babb, who was wounded in action.

The meeting, which included 35 Crescent representatives from all over the country, was in charge of James T. Birch, vice-president in charge of sales. Crescent's advertising agency, the Aitkin-Kynett Company, was represented by Martin E. Goldman and Allen C. Smith.

G-E Revises Construction Materials Sales District

A REVISION of the General Electric Company's construction materials sales districts has been completed as part of an overall company plan for more adequate coverage of construction materials distributors and the electrical trade, according to an announcement by C. R. Pritchard, general sales manager of the Appliance and Merchandise Department.

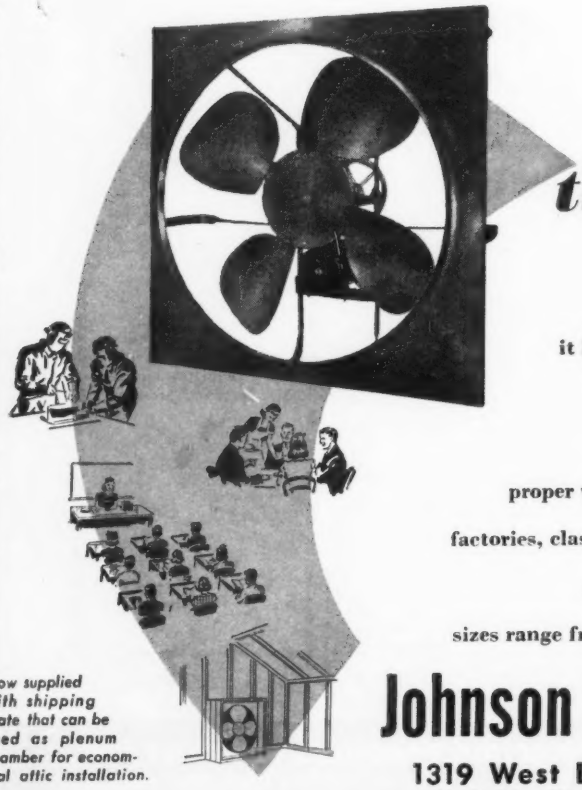
New district offices have been opened in Philadelphia, Pa., and in Kansas City, Mo., under the new plan, which increases the number of districts and district managers from seven to nine.

The revised organization of construction materials sales districts is as follows: Northeastern District, Boston, Mass., J. H. Newman, manager; New York District, New York, N. Y., J. O. Wetherbie, manager; Atlantic District, Philadelphia, Pa., W. E. Swenson, manager; Great Lakes District, Cleveland, Ohio, S. D. Hopper, manager; North Central District, Chicago, Ill., G. E. Wickman, manager; Central District, Kansas City, Mo., O. W. Cerny, manager; Southwestern District, Dallas, Texas, R. L. Snodgrass, manager; and Pacific District, San Francisco, Calif., J. O. Dillingham, manager.

No manager for the Southeastern District, Atlanta, Ga., has been named since the recent death of O. F. Kypta.

The new district set-up will necessitate reallocation of district representatives and distributors, also, Mr. Pritchard announced.

New appointments among district managers include S. D. Hopper, in the Great Lakes District; W. E. Swen-



low supplied rith shipping rate that can be sed as plenum hamber for economcal attic installation.

the all-purpose fan

That's the name for the Johnson belt-driven propeller fan shown at left. It's big and its lusty . . . it has an appetite for work and no job is too tough to handle. ★ Displacing air at a rate of 4,500 to 25,000 cubic feet per minute (depending on size) it is capable of giving proper ventilation to small or large residences, offices, restaurants, factories, class rooms, garages, warehouses or any of a hundred different places. ★ The new 1946 model is now ready for delivery . . . sizes range from 24 inches to 54 inches. Order today . . . and save delay.

Johnson Fan & Blower Corp.

1319 West Lake Street *Chicago,* Illinois

H. C. BIGLIN, 177 HARRIS ST., N. W., ATLANTA 3, GA.

JOHNSON Healthaire PRODUCTS

son, in the Atlantic District; and O. W. Cerny, in the Central District.

More Farm Homes Wired Is Plan of N. C. Co-Op

THE NORTH CAROLINA Rural Electric Cooperatives Association at a meeting at Durham, N. C., recently considered ways and means of extending electricity to approximately 60,000 North Carolina farm homes at a cost of around $18,000,000.

Gwyn Price, of Raleigh, North Carolina, REA chairman, told the group that materials necessary for the extension of electricity to rural areas of the state will become available now that the war is over, and that the state has been allotted $18,000,000 in Federal funds for the program.

W. L. Jones, of Goldsboro, president of the association, presided over the two-day meeting.

Headquarters Announced Of Monitor Co. of Ga.

O. M. JACKSON, president of the Monitor Company of Georgia, has announced the location of its headquarters at 976 West Peachtree Street, N. W., Atlanta, Ga.

The company serves as distributors of Monitor home appliances, Dormeyer food mixers and juice extractors, Hewitt Restfoam mattresses, Ken Rad mazda and fluorescent lamps, and Geo. D. Wetherill and Co. (Atlas) paints.

Don G. Mitchell was elected executive vice-president of Sylvania Electric Products, Inc., at a meeting of the Board of Directors held recently, according to Walter E. Poor, president of the company. Mitchell joined Sylvania as vice-president in charge of sales in 1942.

CRESCENT SERVICE CABLES

Employ

HEAT-RESISTING INSULATION

● ***ALL*** **CRESCENT Service Cable is insulated with a Type RH, super-aging, heat resisting rubber compound of the best grade obtainable that gives 35% to 44%** ***greater current carrying capacity*** **than ordinary code grade insulated service cable.***

● **Service cable is the bottleneck limiting the amount of customer demand for all appliances, and future business for the contractors, dealers, wholesalers and power suppliers.**

● **With CRESCENT SERVICE CABLE you get maximum load capacity, long life and value. Made in Type SE, Style U, as shown; Style A with a galvanized steel armor tape over the bare neutral conductor, and in Type SD, Drop Cable. Sizes—No. 12 to No. 2 AWG in two and three conductors.**

*Based on 1940 N. E. Code.

CRESCENT
WIRE and CABLE
CRESCENT INSULATED WIRE & CABLE CO.
TRENTON, N. J.

ATLANTA, GA., Edgar E. Dawes, 401-402 Rhodes Building
NEW ORLEANS, LA., Paul Hogan, Jr., 305 Levert Building
RICHMOND, VA., Robert W. Fishburne, 112-114 Exchange Bldg.
DALLAS, TEXAS, M. C. Huie Company, 707 Thomas Building

News About People

Advertising, sales promotion, sales training, publicity and public relations of the Norge Division of Borg-Warner Corp. have been consolidated under **C. H. MacMahon**, director of advertising and public relations. Mr. MacMahon has been successively a salesman, regional manager, product manager, Eastern salesmanager and advertising manager with the Norge organization since 1934 and has been selected for his new post because of his wide experience in merchandising and advertising.

G. H. MacMahon

* * *

The H. K. Dewees Company of Atlanta, Ga., owned and managed by **H. K. "Pete" Dewees**, has been named manufacturer's representative for the Southeast District of General Mills' new Home Appliance Department. Announcement of the appointment was made by **Roscoe E. Imhoff**, department manager.

National distribution of new home appliances will begin in the spring of 1946. In preparation, General Mills is currently opening 13 district sales offices throughout the country. The initial distribution to retail dealers will include electric irons and pressure saucepans.

* * *

Sangamo Electric Company, Springfield, Ill., has announced the appointment of **C. H. Lanphier** as vice-president. Mr. Lanphier was, prior to his appointment, treasurer of the company. He graduated from Yale, and after several years in the Sangamo Engineering Department, and later as assistant to the General Superintendent, he became an officer and director of the company in 1943.

C. H. Lamphier

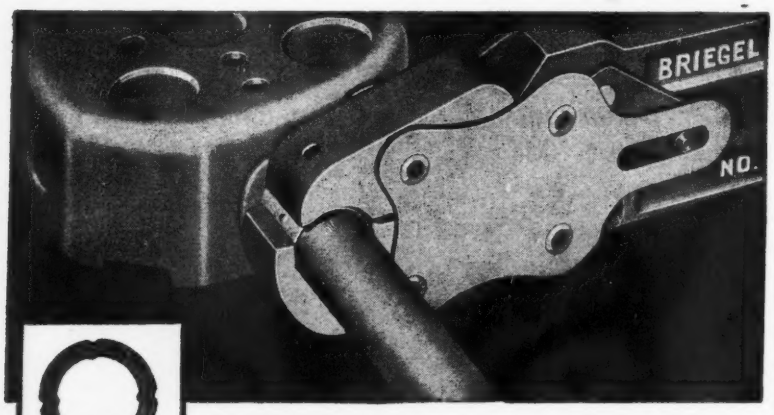
The Sangamo Electric Company also announced recently the appointment of **George A. Hoffman** as district manager of the newly established Central South District with offices at **403 Bonny Street, New Orleans, La**

G. A. Hoffman

Mr. Hoffman has been in close contact with utility activities in various capacities with the Louisiana Power and Light Company during the past 13 years. Born in New Orleans, Mr. Hoffman attended Loyola and Tulane Universities, with post-graduate work at the University of Florida and Texas A. & M.

Also announced by Sangamo, is the appointment of **E. Carl Whittaker** as sales engineer in the newly established Charlotte, N. C., branch of the Mid-South District. Mr. Whittaker, who will be associated with **H. W. King**, district manager, Louisville, Ky., graduated from the University of Illinois with a B.S. degree in 1934.

In 1942 he enlisted in the Navy, obtaining his discharge recently as a lieutenant (s.g.).



Cross section Showing Indentations.

E·M·T·UP THE QUICK WAY

Two Squeezes and it's Set

TWO QUICK SQUEEZES give you Finer, Faster Conduit Connections. B-M Fittings do away with the twisting, turning and tightening of nuts and save you valuable time and materials. Then too, they are stronger, neater and much easier to work with in tight places. Start using B-M Fittings today. Have more satisfied customers—more profits from each job!

(All B-M Fittings carry the Underwriters Seal of Approval)

DISTRIBUTED BY

The M. B. Austin Co., Chicago, Ill.
Clayton Mark & Co., Evanston, Ill.
Clifton Conduit Co., Jersey Cy., N. J.
Gen. Electric Co., Bridgeport, Conn.
The Steelduct Co., Youngstown, Ohio
Enameled Metals, Pittsburgh, Penn.
National Enameling & Mfg. Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., New Brunswick, N. J.

Prompt Deliveries on Properly Rated Orders

BRIEGEL METHOD TOOL CO. • Galva, Ill.

Glenn W. Thompson, vice president of Noblitt-Sparks Industries, was elected president to succeed **Q. G. Noblitt,** who became chairman of the board January 1, 1946, according to a recent announcement.

Mr. Noblitt, as chairman of the board, will place more active management responsibilities on the company's new president and other elected officers.

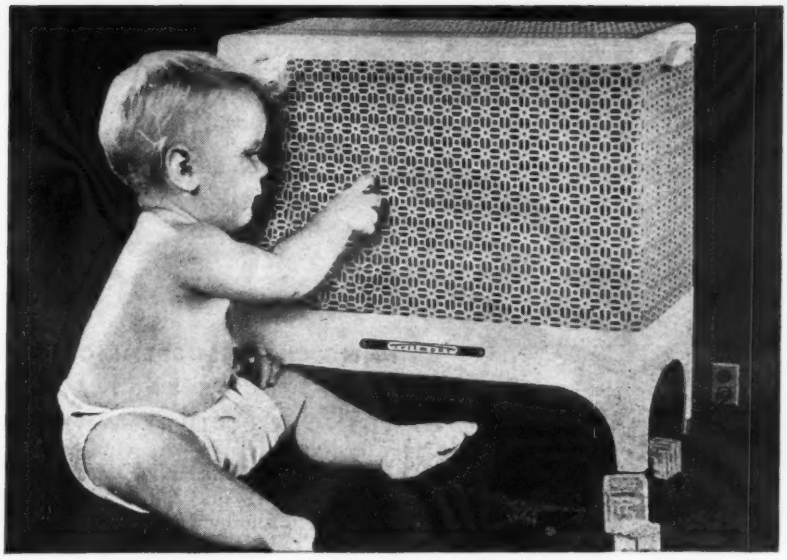
The company, operating 11 individual plants, is engaged in manufacturing a variety of products which run principally into two classifications: The Automotive Division, which is engaged in supplying equipment for the major automobile companies, also produces the car heaters sold through automotive jobbers under the Arvin trade name. The other groups consist of household products merchandised under the Arvin trade name. Arvin is the nationally recognized trade name for the consumer products manufactured by Noblitt-Sparks Industries. These products consist of 20 home radio models, a line of electrical appliances, metal chrome dinette sets and outdoor furniture, a de luxe movable type laundry tub and a sturdy metal ironing board.

* * *

Roger H. Bolin, manager of advertising for the Westinghouse Electric Appliance Division, Mansfield, Ohio, has announced five appointments in his department as the initial move in preparing for the intensified advertising, sales training, and promotion programs planned for the full line of Westinghouse home appliances.

J. R. Clemens, assistant manager of appliance advertising, who will have the responsibility of product advertising, promotion, and sales training.

H. W. Luker, who has been appointed southwestern division sales manager for Bendix Home Appliances, Inc., with headquarters in Fort Worth.



SAFETY FIRST ...and Last!

Safe No need to tell the children "not to touch." All sides are always cool . . . no danger to youngsters or pets.

Efficient
Radiates a gentle penetrating heat that warms but does not burn. No fans or noisy moving parts!

Handsome
A lifetime investment in appearance and comfort. Ivory-enameled or brown to blend with your room.

BOTH Underwriters' Laboratories and The Good Housekeeping Institute subjected The *Trilmont Safety Heater* to exhaustive tests before awarding it their seals of approval. These are your warranty of Trilmont's inherent safety and in-built quality . . . your assurance that you can recommend this Nationally Advertised heater with absolute confidence.

Trilmont's two non-glowing "Black Heat" coils, which assure exceptionally long life, radiate healthful, cheerful warmth throughout the entire room—not just a spot. And because these oversize coils are enclosed in an insulated, dual-wall cabinet, all four sides of the heater remain cool—minimizing the chance of shock or fire hazard to children, pets or property . . . a sales point no parent will overlook! . . . Write today for complete data and name of nearest distributor.

SPECIFICATIONS . . . *Width 19½", Height 18½", Depth 9¼", 120 Volts, 1200 Watts, AC or DC current. Weight 19 lbs. Carries Underwriters' approval.*

APPROVED OPA PRICE **$33.00** *Including Cord Set*

95c EXTRA AT AND WEST OF THE MISSISSIPPI

REPLACEMENT OR REFUND OF MONEY ★ Guaranteed by Good Housekeeping IF DEFECTIVE OR NOT AS ADVERTISED THEREIN

TRILMONT PRODUCTS COMPANY
24th & WALNUT STS • PHILADELPHIA 3, PA.

HANGING CHAIN SUSPENSION FIXTURES IS AS EASY AS HANGING A PICTURE—WITH HYDEE HANGER*

Just connect wires, screw to outlet box and the job's done—in a few minutes. Fits standard 4" or 3¼" outlet box or plaster ring. Self-grounding—you can use 2-wire cord and plug. Complete with receptacle, two 5-foot chains, "S" hooks and cord clips. Nothing else to buy.

$1.50 Each List

Day-Brite Lighting, Inc., 5435 Bulwer Ave., St. Louis 7, Mo. Nationally distributed through leading electrical supply houses.

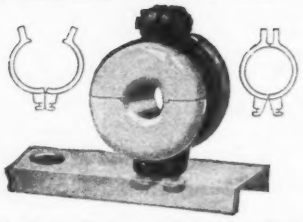
905

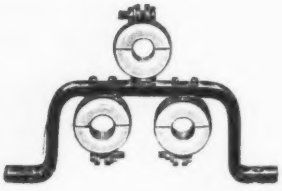
*Patent No. D-141024. Others pending. Underwriters approved.

IT'S EASY TO SEE WHEN IT'S DAY-BRITE Lighting

"EFFICIENCY" DEVICES FOR CONDUIT AND CABLE SUSPENSION

EFFICIENCY NESTED CONDUCTOR RACKS





Nested Conductor Racks available for Cable diameters from 5/16" to 2-3/8".

● Simplicity is keynoted in the design of the EFFICIENCY bushing rack. Note that a single bolt supports the bushing and at the same time clamps the bushing support to the rack. Each fitting is a separate unit . . . permits the installation of each cable independently.

The EFFICIENCY rack is constructed of standard rolled steel channel — sizes according to size of bushings and number of mountings for each rack. Bushing supports are malleable iron. For A-C service a brass half is furnished. Bushings are glazed porcelain, extra large and heavy.

Complete information on all EFFICIENCY Electrical Devices is available. Write today for your copy of Catalog No. 38B.

Efficiency ELECTRIC AND MANUFACTURING CO.

MANUFACTURERS OF EFFICIENCY ELECTRICAL DEVICES FOR CONDUIT, WIRE AND CABLE SUSPENSION

EAST PALESTINE, OHIO

P. W. Endriss, assistant manager of appliance advertising, who will handle full line advertising programs, consumer education, and the advertising and promotion of insecticide dispensers.

E. J. Hegarty, manager of sales training, with responsibility for the development, production, and testing of wholesale and retail sales training plans.

K. A. Donelson, operations manager, who will be responsible for budgets, administering the Westinghouse cooperative advertising, and who will act as office manager of the advertising department.

J. G. Baird, sales promotion manager, who will be responsible for full line sales promotional activities for department and furniture stores, and who will continue in charge of the Westinghouse store modernization activities, exhibit and convention work, and consumer film programs.

* * *

Caxton Brown, president of the Weston Electrical Instrument Corporation, announces the appointment of **Harold L. Olesen** as general sales

Harold L. Olesen

manager. **H. L. Gerstenberger,** who formerly served in that capacity, continues as vice-president in charge of sales.

Mr. Olesen has been associated with Weston since 1931 and has successively been in charge of radio sales, assistant general sales manager and sales promotion manager.

In connection with the elevation of Mr. Olesen, an improved home office sales structure has been developed. Its inauguration forecasts a more intensive cultivation of sales markets not only for the current lines of equipment, but for new products as they are announced. It also foreshadows a higher character of service in the procurement of Weston instruments.

Under this new plan the Sales De-

partment is divided into two groups: A Product Division, manned by product experts, to handle details associated with sales, and a Marketing Division, staffed by a group of experienced market men, to develop and maintain the markets into which Weston products are sold.

* * *

L. E. Walters has been appointed southwestern zone manager for the Nash-Kelvinator Corporation with headquarters in Dallas. He is a native of Americus, Georgia.

After finishing school in Georgia, Mr. Walters went to Detroit, Michigan. In 1932 he became associated with the Nash-Kelvinator Corporation at the factory and was later transferred to the Detroit Sales Zone.

At the outbreak of World War II, Mr. Walters accepted an appointment with the War Production Board, in Atlanta, Georgia, as director of salvage.

* * *

R. E. Peake, vice-president, Peaslee-Gaulbert Corporation, has announced the appointment of **Lawrence B. Merchant** as manager of the major appliance department of his concern for this district.

Mr. Merchant has been associated with the electrical distribution industry in the Southwest for the past 20 years and has lived in Dallas since 1931.

Peaslee-Gaulbert entered the major appliance field in 1928.

* * *

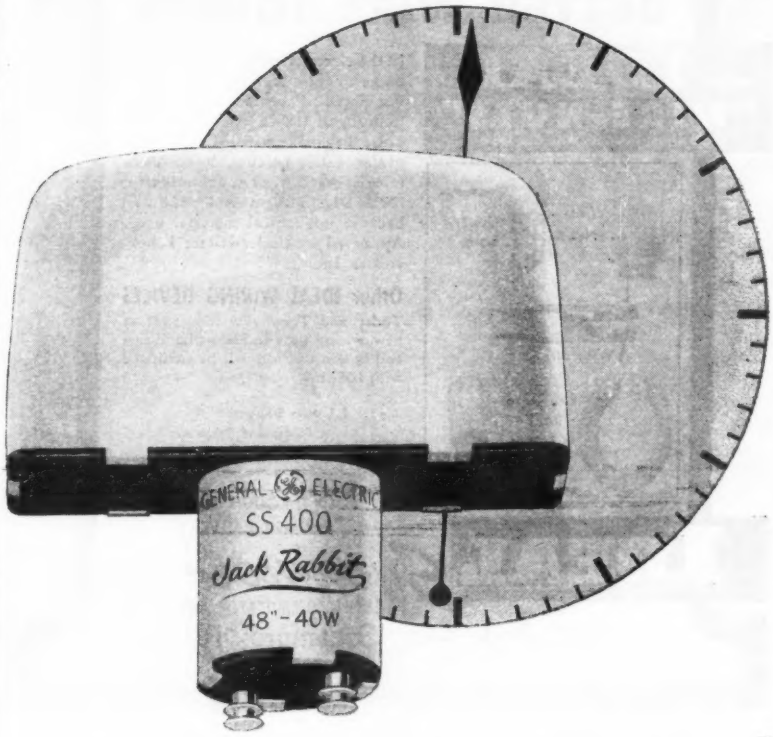
L. J. Olivier has assumed duties as merchandising manager for the Graybar Electric Company in New Orleans.

Native of New Orleans, Mr. Olivier

L. J. Olivier

was graduated from St. Stanislaus College and has continuously worked in the city since 1927, having been associated with the Louisiana Power and Light Company. He has taken an active part in the New Orleans section of the American Institute Electrical Engineering and is a member of the Electrical Association of New Orleans.

FOR A SPLIT-SECOND START



Equip Fluorescent Fixtures With G-E Jack Rabbit Starters

REG. U.S. PAT. OFF.

With the new G-E Jack Rabbit installed in your fluorescent lighting system, you have the advantage of split-second starting and protection against blinking for 40-watt fluorescent lamps. On top of that you have economy of operation. The Jack Rabbit, which is for use with conventional low cost ballasts, provides approximately 13 per cent greater over-all operating efficiency than high-voltage instant-starting ballasts.

This combination of features is exclusive with the Jack Rabbit, which is the reason why this new starter has attracted wide interest wherever fluorescent lighting is used. Your system will be improved and modernized with the Jack Rabbit — its quick, efficient starting and protection against dead lamp flickering are benefits of direct value to you.

For additional information about the Jack Rabbit write to Section G261-16, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.

GENERAL ELECTRIC

HELPING ELECTRICITY SERVE AMERICA BETTER!

BETTER WIRE JOINTS

with IDEAL "WIRE-NUTS"
(Solderless, Tapeless Wire Connectors)

In the electrical wiring of factories, homes, public buildings, etc., leading electrical contractors are using millions of IDEAL "Wire-nuts" because they make wire joints that are neater, safer, quicker, better electrically—stronger mechanically. IMMEDIATELY AVAILABLE . . because no critical material used. Approved by Underwriters' Laboratories, Inc.

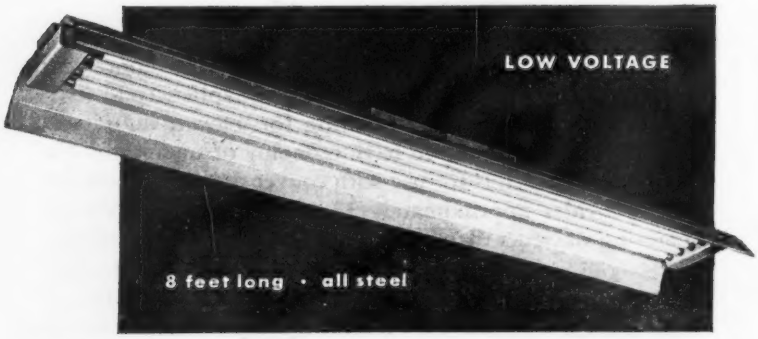
Other IDEAL WIRING DEVICES
Today and Tomorrow thousands of new wiring jobs in Industrial Plants and in construction will be facilitated with IDEAL Wiring Devices:—

E-Z Wire Strippers
Lugs, Solder and Solderless
Fish Tape Reels and Pullers
Joist Boring Machine

SOLD THROUGH JOBBERS
PROMPT DELIVERY

IDEAL Sycamore
IDEAL COMMUTATOR DRESSER CO.
1017 Park Ave., Sycamore, Ill.
Sales Offices in all Principal Cities

*COLOVOLT COLD CATHODE INDUSTRIAL FIXTURES



Here is the new Colovolt industrial fixture, one of a complete line of industrial and commercial "packaged" units. Equipped with the standard 93" Colovolt 10,000 hour lamp, Colovolt fixtures may be used singly or in continuous line lighting in multiples of 8 feet. Instantaneous starting, no flickering, guaranteed for 1 year except for failure due to breakage are extra advantages of the Colovolt Cold Cathode low voltage fluorescent lamp. The long life expectancy of Colovolt lamps may be realized even when constantly turned on and off, and *pre-scheduled re-lamping, with no loss of production or time, is now possible with Colovolt installations.*

*Trade mark registered U. S. Pat. Off.

Contact your electrical wholesaler or jobber, or write us for full details and prices.

General Luminescent Corporation
GENERAL LUMINESCENT CORPORATION
680 S. FEDERAL STREET CHICAGO 5, ILLINOIS

Names in the News

Augusta, Ark.—Russell Harris was recently elected manager of the City Light and Water Plant at a meeting of the city council. He succeeds A. B. Marsh, who resigned to enter the electrical appliance and furniture business.

* * *

Brinkley, Ark.—M. K. Frey recently opened a new electrical supply and radio store here in a completely redecorated building. The new business is called Frey's.

* * *

Sanford, Fla.—The H. B. Pope Co. recently opened their new showroom for the display of electrical equipment. The company has also added a large warehouse to the rear of the establishment.

* * *

St. Petersburg, Fla.—The Brinson Electric Co., 3244 Eighth Ave., North, will erect a $10,000, one-story, 50 x 50 foot concrete block building at 1315 Central Avenue to house a branch of their expanding business.

* * *

Albany, Ga.—A charter by Samual Allen Meeks, Annie Marian Meeks, and John Allen Hightower to form an electric company here was recently granted by Judge Carl E. Crow, of the Albany Circuit, Superior Court. The company, Meeks-Hightower Electric Company, will sell all kinds of electrical equipment and appliances.

* * *

Jesup, Ga.—Younce Appliance Company has been opened by T. F. Younce Jr., in the new Masonic building on East Broad Street, and he will handle a complete line of electrical appliances. D. A. Nichols will be in charge of the radio department.

* * *

Columbus, Ks.—A change in ownership of the Dale McComak Electrical and Appliance Shop has been announced, with C. L. McKnight as the new owner.

* * *

Dodge City, Ks.—Joseph Schuette has opened an electric shop for house and building wiring and small appliance repair, with the Roy Francis plumbing shop.

* * *

New Orleans, La.—Labiche's, Inc., local clothing store, is erecting a new addition to handle electric and gas appliances and all home furnishings. Four former small stores are being torn down to make room for the new addition, which will front on Union Street.

New Orleans, La.—At the first annual meeting of the Radio Dealers Association since 1941, Morris Warnick was elected president; he had been acting president. Other officers elected were John Stegelmeyer, first vice-president; A. C. Denny, second vice-president; Louis Turner, treasurer; and A. B. Lindauer, secretary.

* * *

Harrisonville, Mo. — Mr. and Mrs. Bert Brandt recently opened an electrical appliance and repair shop at 105 North Independence Street.

* * *

St. Louis, Mo.—The Carl I. Schaeffer Electric Company, formerly located at 2317 South Thirteenth St., has moved into its own building at 1819 Sidney Street. This increases the space from 5,000 to 18,000 square feet. The firm is active in electric range, stoker, non-residential, residential and industrial wiring fields.

* * *

Raleigh, N. C.—The board of directors of the Carolina Power and Light Company, at a meeting recently, approved a construction budget for 1946 calling for a total expenditure of $5,993,866. Principal item in the amount is more than $3,000,000, which is to be spent on rural line construction, adding approximately 10,000 rural customers and providing about 2,500 miles of rural lines. Other items provided for in the construction budget include high voltage transmission lines, substations, transformers, substation improvements and enlargement, additional lightning protection equipment and plant improvement.

* * *

Bethany, Okla.—A new firm, Bethany Appliance, opened here recently under the management of R. W. and T. R. Stewart, in the City Hall building.

* * *

McKinney, Tex.—The Wharton Appliance Store has opened at its location on East Louisiana Street, with Jeff Wharton as owner and manager. The building has been completely remodeled and modernized.

* * *

Gate City, Va.—A newcomer in the electrical appliance business, Ira G. (Sam) Porter, has secured the franchise for a full line of appliances. The new firm is known as Scott County Electric Appliance Company.

* * *

Marion, Va.—S. C. Gibson and H. E. Wolfe, both formerly of Bristol, have opened the Marion Electrical Company, with headquarters in the Peery building on West Main Street. They will do repairing and a general line of electrical contracting.

DEPEND ON—INSIST ON—

P.R. MALLORY & CO., Inc.

MALLORY CAPACITORS

Mallory MSG Capacitor:—Small, compact AC Motor Starting Capacitor that fits almost every mounting bracket or box. Replaces rectangular capacitors with leads, lugs or studs. Each capacitor is packed with complete set of universal mounting hardware and installation instructions.

Necessary leads, lugs, screws, and nuts are included in each box for any type connectors.

Mallory Type "P" Capacitor:—Plastic case overcomes moisture absorption problems, and provides maximum insulation. May be used to replace cardboard insulated aluminum-case capacitors. Splash-proof plastic end cap and simplified "snap on" mounting bracket available when capacitor is used as original equipment.

Distributed by

INSULATION AND WIRES INCORPORATED
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New Electrical Products

Electronic Blanket

THE LATEST scientific contribution to postwar personal comfort is the new electronic blanket, announced by the Simmons Company, 383 Madison Ave., New York, N. Y. In appearance the blanket looks like any other fine blanket but one blanket does the duty that three or four old-fashioned blankets used to do.

Invisibly wired, the new blanket is operated by a small bedside electronic control on whose dial the sleeper may "tune in" the desired degree of sleeping warmth. Once set, the electronic blanket does the rest. Throughout the night the flexible insulated wiring within the blanket serves the dual purpose of providing warmth and checking and controlling the heat. Electronic impulses operate automatically to check and compensate variations in body and bed temperature during the night and at the same time maintain a constant supervision to assure complete safety. Electronic tubes in the control box direct and maintain the supply of warmth in the blanket. Light in weight, the electronic blanket is laundered like any other fine woolen article, and it solves the summertime storage problem since it does away with the need for multiple bed coverings.

Mitchell Luminaire Catalog

MITCHELL Manufacturing Co., 2525 Clybourn Ave., Chicago 14, Ill., has issued Catalog No. 285 covering a complete line of commercial fluorescent luminairies for offices, stores, schools, and public buildings. It includes 2-light and 4-light units in glass-shielded, louvered, and open types for single or continuous row installations with surface or suspension mounting. Of special interest are the deluxe shielded models and the deluxe louvered models which are available with or without instant-start.

New Lamp Packaging Unit

A NEW lamp bulb package which will enable housewives to take home an assortment of lamps in a single easy-to-handle unit has been developed by the Westinghouse Lamp Division, Herbert E. Plishker, advertising and sales promotion manager of the Bloomfield, N. J. plant, announced recently.

Not much larger than a small box of cleansing tissues, the new carton holds two each of the 40, 60, and 100-watt size lamps, adequate to maintain the replacement stock of the average home. A "window" in the top of the new package exposes the carton's contents, permitting a quick visual inventory to be taken.

Mr. Plishker pointed out that the new packaging unit not only is easy to carry, but it also can be used as a convenient home lamp storage bin. It measures 16 x 5-1/2 x 2-3/4 inches.

New Model Airtopia

A NEW MODEL of Airtopia, a single compact unit that gives constant year 'round temperature and humidity control together with air purification, is announced by Drayer & Hanson, Inc., designers and manufacturer of heat exchange equipment, Los Angeles. Formerly known as Reversatemp, the new model is especially suitable for homes, offices and small stores.

Airtopia keeps room temperatures constant despite outside weather conditions, alternating between heating

The PLAN Behind The PRODUCT!

Vaculator

PROTECTED Profits!
Aggressive PROMOTION!
Distinguished DESIGN!

Vaculator
the NAME WOMEN KNOW!

Liven housewares sales with this consumer-accepted "best seller"! Fair-traded for FULL profits, backed by potent advertising in leading magazines, made with PYREX brand glass—and priced LOW to sell QUICKLY.

IN A CLASS BY ITSELF!
DUTCH CLOTHLESS FILTER
The *biggest* "LITTLE" thing in coffee makers! Can't fall out; no cloth or paper; virtually unbreakable; fits ALL standard makes. It's *R-E-D HOT!*
50¢ LIST

FREE! DISPENSER
STOPS the prospect; TELLS the story; MAKES the sale!

VACULATOR · CHICAGO 6, U.S.A.

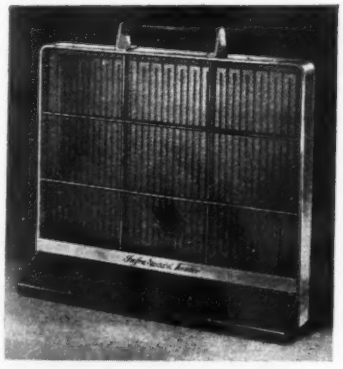
and cooling as required. This is especially convenient in the spring or fall when heating is necessary in the early morning or late afternoon hours, but midday temperatures outdoors call for cooling inside.

The original cost and operating expense is less than the commonly used combination of combustion and compression refrigerating systems. The smallest Airtopia fits into a 3 1/2' x 5' x 7' high space. It is suitable for a 7 room house, or small office, or store building. The units are available in sizes suitable for homes, office buildings, laboratories, stores, sanatariums, or professional offices.

Airtopia needs no chimneys, and leaves no soot, smoke, ashes, fire hazard, or idle equipment. Electrical energy alone supplies the power to operate the compressor and motors. For information write to Drayer & Hanson, 767 E. Pico Blvd., Los Angeles 21, California.

New Infralectric Heater

THE "INFRALECTRIC" heater —a new type of portable radiant heater developed by the Radiant Heater Corporation, of New York City—introduces a completely new principle in heating science as well as design. Where conventional heaters first warm the air in the room in order to



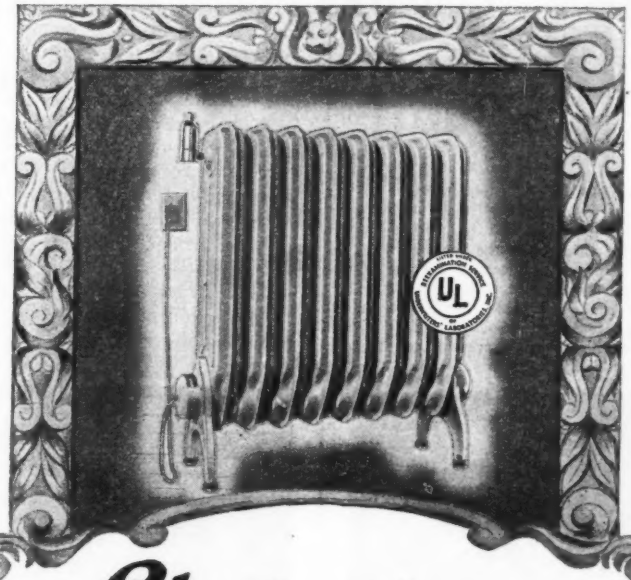
warm its occupants, the new "Infralectric" heater heats the occupants in the room by means of invisible radiant rays.

The "Infralectric" doesn't even look like any home heater you have ever seen before. It consists of two glass plates fitted into an upright stand. And when it is in operation there is no flame, no glow, no fumes —nothing to indicate that the heater is on — yet a person standing clear across the room from it will feel comfortably warm.

Its electric consumption is about 1,000 watts per hour. Additional features of the heater are that it will not

IMITATIONS *are very flattering*

but there's only one **ORIGINAL!**



Electresteem

PORTABLE STEAM RADIATOR

A MASTERPIECE OF PRODUCTION AND A "Best-Seller" TOO!

The enviable reputation of Electresteem is based on years of trouble-free performance. Thousands upon thousands of folks enjoy "steam heat from a wall plug" . . . without any service worries. You can sell Electresteem — the *original* portable steam radiator — with confidence. There's nothing "just like it!"

***Electresteem* is Nationally Advertised!**

GET ON THE PROFIT BEAM with *Electresteem!*

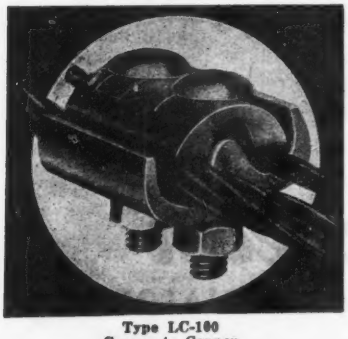
Retail Price $32.95

ELECTRIC STEAM RADIATOR CORP.

DETROIT 8, MICHIGAN

3 POINT CONTACT LINE CLAMPS
ANDERSON

OUTSTANDING performances through more than 18 years of service on the lines of leading utilities throughout the Nation is the record of Anderson's 3-point contact line clamps. Adapted to a wide range of cable sizes. Can carry overloads without overheating. Belled grooves prevent conductor damage.



Type LC-100
Copper to Copper

Type LC-71
Aluminum to Aluminum

We are ready to meet the expansion needs of utilities with a complete time-proved line of ground clamps; line clamps—aluminum and bronze; service taps; tap lugs; universal lugs; T-connectors; all types of bus fittings for substation, construction and maintenance. Representatives in all principal cities.

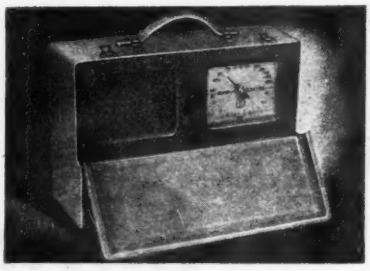
ANDERSON BRASS WORKS
INCORPORATED
BIRMINGHAM ALABAMA

deoxidize the air in the room nor will it ignite inflammable gases or fumes. Exhaustive tests have been made to prove the heater's toughness and durability. Hammer blows will not break its glass plates and water splashed upon it fails to affect its operation. The new "Infralectric" heater is made in both wall and portable models.

G-E Portable Radio

EMPHASIZING convenience, General Electric's new portable radio, Models 254 and 255, featured below, can easily be played on AC or DC house current or on battery. It employs a six tube superheterodyne circuit, and can pick up standard broadcast bands.

There's an easy-to-reach cord in the back for plugging it into house current, and the battery is used for



out-of-doors playing. Its batteries are good for approximately 250 hours of playing. This new portable is easily carried, weighing only 14 pounds.

The tone is full and rich, and the newly designed extra-efficient Beam-a-Scope antenna brings in stations uncommon for a portable to pick up.

This handsome portable looks like a piece of fine luggage in gray airplane cloth (Model 254G) or tan simulated English saddle leather (Model 254T). The same radio can be secured with Underwriters' Laboratories approval in gray (Model 255G) and tan (Model 255T). The size is 10¼" high, 15" wide, and 6¼" deep.

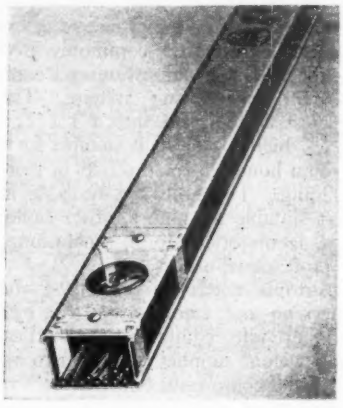
Surfaceduct Raceway

SURFACEDUCT No. 1700, the 1-5/8" x 2-1/8" two piece surface raceway of base and capping currently being introduced by National Electric Products Corp., Pittsburgh, completes this line of surface raceway systems.

Embodying the lay-in principle, the new item and a minimum number of fittings provide a raceway system to serve every electrical requirement up to 60 ampere loads.

Designed primarily to facilitate the use of flexible power tools and machines, Surfaceduct 1700 also serves any electrical application required for light, heating devices and power.

According to the manufacturer, an exclusive patented arch-type bridge



within the raceway allows maximum wire capacity, retains the wires during installation, locks the snap-on cover, and serves as a method of installing more than 300 approved manufacturers' devices. Four of these bridges are included with each 10' length. Surfaceduct 1700 is packed five lengths to a sealed corrugated container.

Without devices, Surfaceduct 1700

HELWIG SPEER
Carbon Products

BRUSH KITS of all descriptions
CARBON BRUSHES of all descriptions

HELWIG COMPANY
2544 N. 30TH ST. MILWAUKEE 10, WIS.
Southern Offices
323 Northwest Second St.
Oklahoma City 2, Oklahoma
Telephone: 2-6881
3000 Block McKinney, Houston 3, Texas
Telephone: Preston 1610
1913 Washington Ave., St. Louis, Mo.
Telephone: Chestnut 6510

has an Underwriters Laboratory rated capacity of 6 No. 6, or 10 No. 8, or 10 No. 12 or No. 14 wires. When devices are incorporated within the raceway, the rated capacity is 4 No. 6, or 5 No. 8, or 10 No. 10, 12, or 14 wires.

Virden's New Fixture

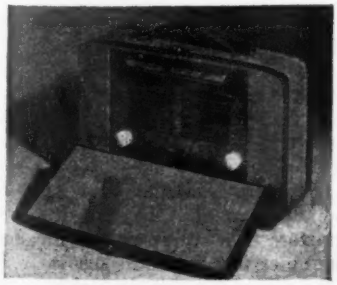
WITH A distinctive new fixture, the John C. Virden Company, Cleveland, announces its entry into the fluorescent home-lighting field. In two sizes, the two lamp 20-watt and the two lamp 40-watt domestic fixtures have luminous side panels, gracefully curved louvers to add free-flowing line, and metal end plates with insets of molded translucent plastic.

Canopies are rigid to hold the luminaires in fixed position. Form, though designed in the modern man-

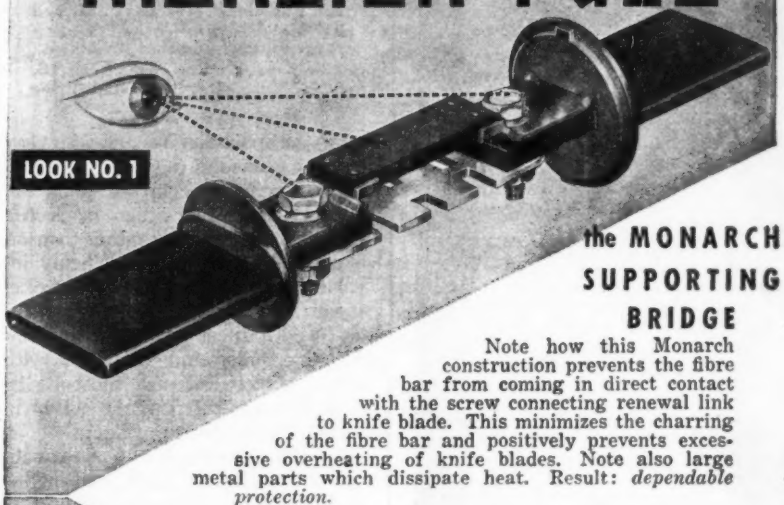
ner, is sufficiently adaptable to blend with the finish and furnishings to most interiors. Finish is white and chrome or ivory and gold. The louvers are hinged and starters inset for easy relamping and replacement. These features are also characteristic of the two four lamp 20-watt fixtures that complete Virdens new domestic line.

Garod Radio Models

GAROD 6E1 "Traveltone" is a 6 tube three-way portable which plays on a-c, d-c, or batteries. Superheterodyne receiver circuit employs three gang tuning and RF stage. "Liftable" loop antenna concealed in back of case can be lifted in "tough areas." Newly improved permanent magnet speaker assures sufficient volume with leather handle; plastic slide-rule dial; etched bronze modern grille; and reliable lock.



Take a TWO-WAY LOOK
AT THE
Monarch Fuse

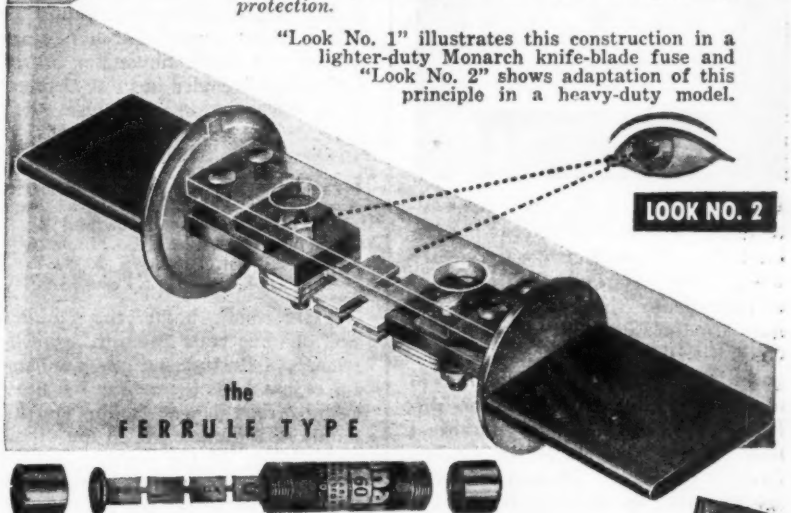


LOOK NO. 1

the MONARCH SUPPORTING BRIDGE

Note how this Monarch construction prevents the fibre bar from coming in direct contact with the screw connecting renewal link to knife blade. This minimizes the charring of the fibre bar and positively prevents excessive overheating of knife blades. Note also large metal parts which dissipate heat. Result: *dependable protection.*

"Look No. 1" illustrates this construction in a lighter-duty Monarch knife-blade fuse and "Look No. 2" shows adaptation of this principle in a heavy-duty model.



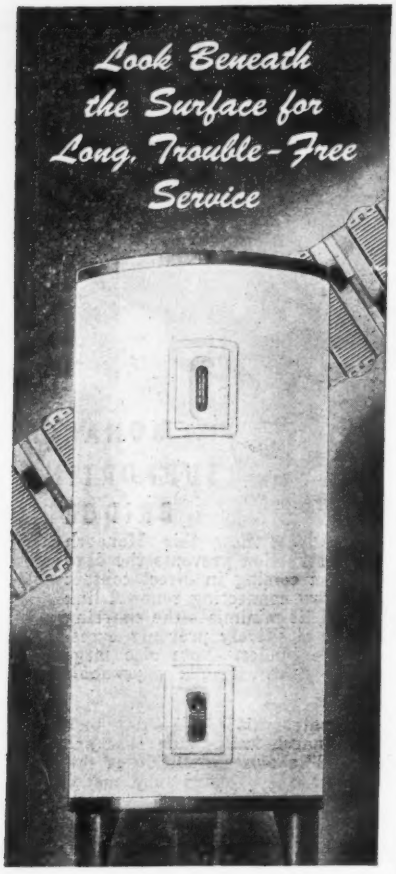
LOOK NO. 2

the FERRULE TYPE

Specify Monarch Fuses for improved FUSErvice

Monarch RENEWABLE Fuses

MONARCH FUSE CO., LTD.
118 E. FIRST ST., JAMESTOWN, N. Y.



Just as you "cannot judge a book by its cover" neither can you predict the kind of service an electric water heater will give by its outer shell—it is what is underneath that counts. If you compare the inner construction of a Clark with that of other water heaters, you will find many little differences in material and design. But the big difference, the feature that guarantees long, faithful service is the famous Clark "Lifesaver" Element. If you are planning on merchandising electric water heaters you will find it well worth your while to get the facts about this time-tested feature found exclusively in the Clark. Our brochure "In a Nut Shell" is yours for the asking — may we send it to you?

A CLARK FRANCHISE FOR YOUR TERRITORY MAY STILL BE OPEN. WRITE FOR DETAILS.

McGRAW ELECTRIC COMPANY
CLARK WATER HEATER DIVISION
5201 W. 65th ST., CHICAGO 38, ILL.

CLARK
ELECTRIC WATER HEATERS
A Toastmaster Product

New Electrical Books

Electric Circuits and Machines

By Eugene C. Lister. Published by McGraw-Hill—Whittlesey House, McGraw-Hill Book Co., 330 West 42nd St., New York 18, N. Y. 358 pages, illustrated. Price $3.50.

AN introduction to practical electricity is offered in this book, with particular emphasis being placed on the physical action that occurs in electric circuits and machinery rather than on a detailed analysis of the theory involved. An over-all picture of the electrical field, including the fundamentals of both direct and alternating currents, circuits, and machines with which a technical man must be familiar, are presented by the author in a simple and concise manner.

The treatment is as non-mathematical as practicable, and the mathematics are limited largely to simple algebra. Many numerical examples are worked out in detail, and a list of problems is included in those chapters where the solution of problems will illustrate the principles involved.

Uranium and Atomic Power

By Jack DeMent. Published by Chemical Publishing Co., Inc., 26 Court Street, Brooklyn 2, N. Y. 335 pages, illustrated. Price $4.00.

THE atomic bomb, the culmination of three years' intensive work by science, industry and the military forces, has made the man in the street aware of the danger to him and his family of the uncontrolled use of the basic power of the universe. Thus atomic power has become of great interest to millions, whereas it was previously only the concern of a limited number of scientists.

There is a new world in the making, now that we can harness atomic power. Locked within each atom is a reservoir of tremendous energy. The present methods of releasing this energy from uranium are complex and very expensive, but intensive research will, no doubt, produce atomic energy more plentifully and less expensively.

This clearly-written practical book gives the layman, student and chemist all the information essential to a thorough understanding of atomic power and the atomic bomb. Two chapters are devoted to the occurrence and properties of uranium minerals and two others to their qualitatiive and quantitative analysis. The remaining chapters discuss the chemistry and physics of uranium and specific methods in uranometry. A new section on the atomic bomb has been added.

Distribution Subjects Covered at AIEE Meet

(Continued from page 64)

the walls of the bellows, heating occurs which changes the vapor pressure of the enclosed liquid. Continued heating causes the vapor to exert a pressure sufficient to actuate the toggle mechanism causing the switch to close.

The closing of the switch by-passes the entire series capacitor and thus terminates the flow of gap current and allows the bellows to start cooling. Cooling causes the vapor to recondense, and the resulting differential pressure reopens the switch and restores the series capacitor to service.

New Network Protector

A 3000-ampere submersible network protector for 120/208-volt, three-phase, 60-cycle service is described in the paper presented by G. G. Grissinger and F. D. Johnson, both of Westinghouse Electric Corp., entitled, "A New Submersible Network Protector of Higher Rating."

Designed for application to secondary networks having highly concentrated load areas, the interrupting rating of this protector is 40,000 amperes. The accepted practice for network protectors requires that the circuit breaker withstand an initial instantaneous peak of 2¼ times the rms current which is to be interrupted, in this case a peak of 90,000 amperes, and requires that it carry the short-circuit current for 60 cycles before the current is interrupted.

Problems encountered in the design of this new protector involved reductions of copper and iron losses and dissipation of heat. The paper described the methods used to overcome these difficulties.

Opportunity in Farm Crop Drier Systems

(Continued from page 61)

normal weather conditions in this area, I planted 200 acres this year, knowing that rain or shine I would be able to save them. It just means that any farmer or rancher can plan on increasing his farm program at least 100 per cent and feel certain that he can save every acre of it."

So there is the new field for the supply man and the electrical contractor. For complete information, inquiries may be addressed to B. H.

Standley, Agriculture Department, Houston Lighting and Power Company, Houston, Texas, or, P. T. Montfort, Agricultural Engineering Department, Texas A. & M. College, College Station, Texas.

Spray Gun Painting Of Motors and Coils

(*Continued from page 65*)

nent parts in a convenient location, you can make it more convenient for the painter to do right than wrong.

In spray painting motors, this company uses paper to shield the windings by placing it inside the bell through the holes. The exposed part of the shaft is covered with masking tape, and the name plate is masked with tape.

After a motor is spray painted, there is no need for scratching paint from the plate. It is only necessary to remove the paper and masking tape, and the motor is ready for final test run and delivery.

From the Notebook Of a Supersalesman

(*Continued from page 46*)

For you in making good tomorrow what does this tendency mean? Simply this: that if you want to sell more all you have to do is collect and use more facts. These facts will cover three main fields:

1. Facts about your product. You should know all about it. Few salesmen know everything about their products. But you should.

2. Facts about its uses. You should be an authority on the uses of your product, and should know uses which your prospects do not even suspect until you show them.

3. Facts about the prospect's needs. If you know all about his business, you can find many needs for your product, and as you find needs, you will find sales.

The thing every ambitious salesman should do now is start thinking in terms of facts, gather new facts, study, read, think, dig.

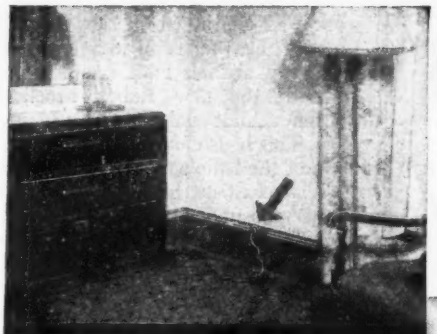
If he worships facts during the coming year, he won't have to worry much about volume. It will come.

Summer Sunshine From New F Lamp

(*Continued from page 52*)

lamps, into longer ultraviolet rays desired.

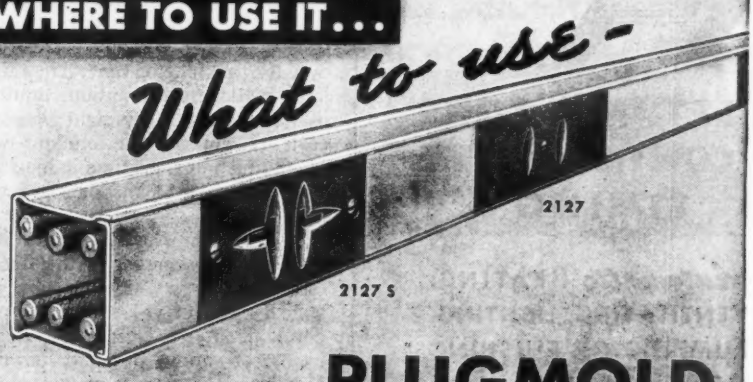
Considerable progress in capturing the elusive phosphor was made at Nela by the late Dr. Willard A. Roberts. Since his death, the research



WHERE TO USE IT...

Wiring for convenience and economy of maintenance in hotel rooms requires ample outlets, properly placed, for floor, desk and bed lamps . . . fans and appliances . . . located with special regard to the comfort and safety of guests. This photograph shows how Plugmold, installed above the Baseboard, is being specified for this purpose by an increasing number of hotel operators.

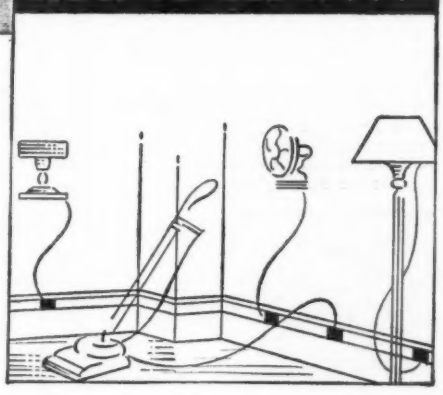
What to use-



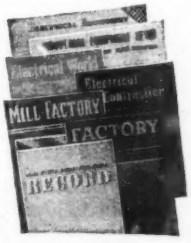
PLUGMOLD

No. 2100 Plugmold—Capacity: 6 No. 12 R.C. Conductors with receptacles installed; 10 No. 12 R.C. Conductors without receptacles.

HOW TO USE IT . . .



Diagrammatic drawing shows typical installation of Plugmold No. 2100 in hotel rooms. Outlets may be located exactly where required and in the number required for adequate service. When redecorating or re-arranging rooms the location of outlets or the number of outlets may be changed without disturbing the basic installation . . . making Plugmold an extremely economical long range investment from the maintenance point of view, eliminating hazardous long extension cords and the pilferage of plugs and accessories that has in the past proved a costly item.



ELECTRICAL CONTRACTORS

Business publications like these, with aggregate circulation of over 240,000 monthly among your prospects and customers, carry Wiremold advertising messages designed to HELP YOU BUILD BUSINESS. Tie in with this aggressive promotion program.

THE WIREMOLD COMPANY
Hartford 10, Connecticut

NEMA KNOW YOUR WIREMOLD

BUSINESS BUILDER IN TOMORROW'S MARKET FOR ADEQUATE WIRING

SOLD THROUGH ELECTRICAL WHOLESALERS . . .
INSTALLED BY ELECTRICAL CONTRACTORS . . . EVERYWHERE!

"Mr. Tops," The Paragon Symbol of Top Quality.

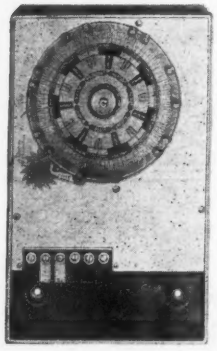
LET "MR. TOPS" CONTROL YOUR TIMING of

***Automatic* HEATING, VENTILATING, LIGHTING, PUMPING OR FLUSHING OPERATIONS . . .**

Paragon 700 Series Time Switches are equipped with 6" calendar dials which make one complete revolution every 7 days. Dial trippers can be independently set for different daily ON and OFF schedules. Settings can be made in advance for an entire week. Any day or days operations may be omitted entirely on a pre-set program.

Each day of week clearly separated from other days; graduated into hours and half hours; day and night distinctly separated. Operations from ON to OFF or from OFF to ON can be set as close as three hours apart and can be separately adjusted throughout each 24 hour day in the week.

Write for a complete bulletin.



Paragon 700 Series Time Switch

PARAGON ELECTRIC COMPANY
713 Old Colony Building
Chicago 5, Illinois

Paragon Chicago
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

work was continued by Dr. H. C. Froelich of the lamp development laboratory, at Nela Park. Lamps coated with the new Roberts-Froelich phosphor emit only a faint bluish glow. This hails chiefly from the radiation of the lamp's mercury discharge.

Nela scientists, however, sight still further phosphor developments which would give birth to improved fluorescent lamps producing a wealth of light, beneficial ultraviolet and genuine sun tan . . . all from the same source. They sight a new indoor day with persons enjoying continuous exposures to the combined radiations over long periods of time. They sight lower wattage consumptions resulting in lower costs. They sight year-long coats of tan for the millions who spend much of their time indoors and are unable to bask in Southland sunshine.

"All of the various colors with which we are familiar in the fluorescent tube," says George Inman, who guided much of G-E's new phosphor development at Nela, "are created by use of various phosphor powders. We have found that certain chemicals, coated on the inside of a clear fluorescent tube, will lengthen the invisible ultraviolet rays to almost any desired wave length in the visible spectrum. The new phosphor works on that principle. But instead of lengthening the invisible rays to a certain color, as in the common fluorescent lamp, greatest efficiency is reached at wave lengths from which humans get their health and tanning rays from the sun."

What the New Lamp Will Do

Speaking for the new G-E poultray lamps, L. C. Porter, Nela Park's engineer specialist in this field, pointed out that:

"The new lamp has been tested in chicken hatcheries. Results indicate extensive benefits in all fields of bird and animal husbandry. Now, for the first time, hatchery operators can get continuous protection plus benefits of the sun's rays, all from a single source. This one source can be economically operated 24 hours a day at very low cost and with a minimum of attention."

The new G-E poultray lamps emit ultraviolet in about the following combination: 75 per cent germ-killing health-giving "2967" radiation. The "2537" radiation and 25 per cent lamps may be used in the hen house in two ways: shielded and positioned so as to irradiate the birds' legs only; mounted high enough above the chickens to minimize the potency of the "2537" emitted, yet near enough

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Our Engineering and Designing Staff For All Needs in Lighting at Your Disposal

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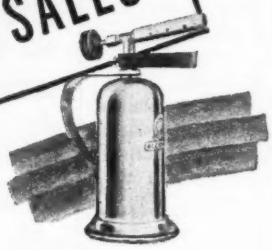

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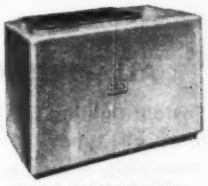

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It will pay you to investigate the profit opportunities of the Schelm "Polar Freez," cold-storage food cabinet now in demand by so many quality-conscious housewives, farmers, sportsmen, and commercial users. Here's a low-temperature unit that can be a real money-maker for you . . . an economical, convenient, long-wearing appliance you'll be proud to sell.

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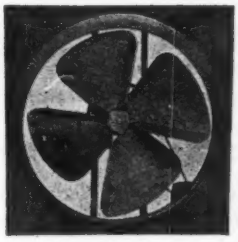
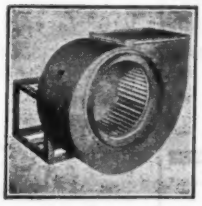


provides fully the comfort and ventilation so essential in army barracks, mess halls, hospitals, headquarters, theaters and other military buildings. Its fine design and sound construction meet the specifications drawn for army fans and it is particularly adaptable to the various types of installations found in army buildings.

HY-DUTY BLOWERS



Single Inlet—Double Inlet. 400 CFM to 12,500 CFM.

Single Inlet Blower illustrated at left is particularly adapted for ventilation of mess halls in military establishments.

VENTILATING DIVISION
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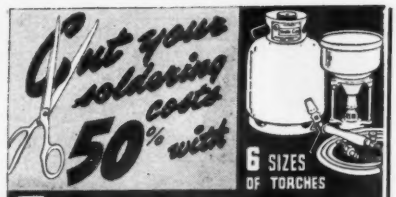

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ALL TYPES OF WORK

Instant-lighting Torches for lead welding, all types of soldering, paint removing, thawing, pre-heating, etc.

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Insto-Gas produces an absolutely clean non-oxidizing flame, leaves no smoke, soot, or grease deposits to cause a faulty soldered joint.

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A cylinder of Insto-Gas lasts at least five times as long as a cylinder of compressed gas of approximately the same weight . . . Economy!

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Insto-Gas produces its own pressure, lights instantly, won't blow out.

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Insto-Gas non-oxidizing flame makes perfect copper pipe soldered joints and leaves no soot or grease to be cleaned from the fitting.

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Insto-Gas AND equipment are recognized as the safest portable heat, listed by both Underwriters and Factory Mutuals Laboratories.

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ES .....

INSTO GAS CORPORATION 1900 East Jefferson Ave. DETROIT 7, MICH.

to provide sufficient health maintaining "2967" for irradiation of the birds' combs and bills.

Among advantages made possible by the new G-E poultry lamps are: high efficiency radiation for curing and preventing rickets in poultry; healthier and bigger birds; increased egg production; and, greater reduction in mortality of chickens through disease germs which are killing an appalling number of chickens annually.

The new G-E poultray lamps are interchangeable with regular germicidal lamps in present fixtures designed for the latter type.

Recruiting and Training Salesmen

(*Continued from page 32*)

–Duties
–Responsibility.
–Education
–Experience
–Physical Qualifications.
–Personal Qualifications

A careful study of the duties of individual salesmen by those who are thoroughly familiar with these duties will reveal that in order to be successful salesmen must have particular qualifications as to education, experience and character.

When all the duties a salesman is required to perform are reduced to writing, the special qualifications required for the job are clearly seen. A job specification is particularly helpful to the employment department and, also, to those who are responsible for training new salesmen.

The selection procedure which has become most popular consists of four steps, as follows:

–Preliminary Screening Interview
–Weighted Application
–Personal Checkup
–The Standardized Interview

There is one other step in the selection procedure followed by many industries which is being used to some extent in selecting salesmen–the "aptitude test."

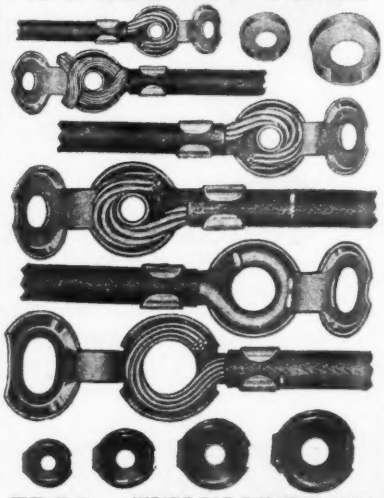
Preliminary Interview

The brief preliminary screening interview is employed for the purpose of weeding out in advance those applicants who haven't a chance for success.

Great care and judgment is exercised in dismissing these applicants in order not to leave them with lasting antagonism toward the company. They are asked to fill in an application blank and this is examined carefully and every other courtesy extended to them. Finally, they are told politely that their qualifications are

FOLDING **DOUBLE** CUPPED
★ WASHER LUGS ★
A SIZE and TYPE *for every need!*

NO SPECIAL TOOL REQUIRED



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VINE AT THIRD—E.S. P. CINCINNATI 2, OHIO

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THE LUCKY FELLOW, HE HAS A RESERVATION AT THE HOTEL

Mayfair

EIGHTH AND ST. CHARLES STS.

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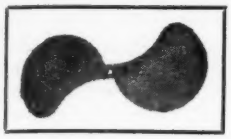

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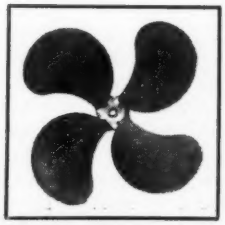
Designed To Produce A Maximum Flow Of Air

With A Minimum Of Noise

All Blades Made in Either ½" or ⅝" Bore.



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HIGHEST in Sales . . .
Lowest in OPERATING cost

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The SEPCO electric water heater is the best way to fill this need for plenty of hot water — for every member of the family.

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ECONOMICAL
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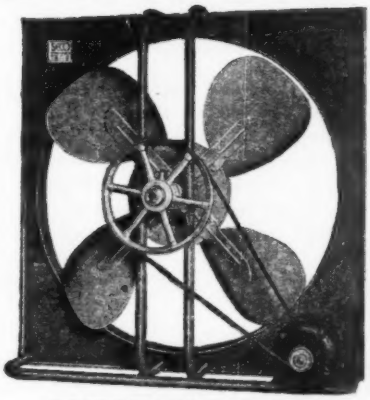
Better than ever

Its simplicity of design permits easier installation in Walls, Attics, or Penthouses.

SECO Fans deliver a maximum volume of air at slow speed, with extreme quietness.



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ATTICS
SCHOOLS
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and for
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AVAILABLE SIZES
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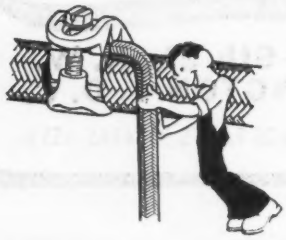
No solder. No junk to carry around. One piece construction. Nothing to fall apart. Installed with the greatest of ease with screw driver or wrench. Compact shape insures nice smooth taping.



Hinjon Jr's. tap all mains #8 to #1,000,000 CM to all branches #14 to #1 in all possible combinations, each one taking a wide range of cable sizes and all types of conductors. Approved by the Underwriters Laboratories.

Order these and the complete line of T&B Lock-Tite Pressure Connectors from your nearby T&B Electrical Wholesaler, our sole distributor. He has them in stock and can take care of your requirements now.

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T&B
THE THOMAS & BETTS CO.
INCORPORATED
manufacturers of electrical fittings since 1898
ELIZABETH, 1, NEW JERSEY
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not suitable for the job that is open.

The Weighted Application Form is used as a finer screen. Men who were accepted for further attention after the preliminary screening but who lack the essential qualifications for success are eliminated before the interviewer goes to the trouble of checking up regarding them with their former employers.

The purpose of the personal check, which is made before the "Standardized Interview" is to give the interviewer a chance to check up on the statements the applicant has made in his Weighted Application or in answering personal questions.

No one should know more about the applicant's personal qualifications than a former employer for whom the applicant has worked even for a short time.

The checkup is always made personally if possible. Some employers think this worth a trip of 150 miles to accomplish. If it is impractical to see the former employer personally, then he is reached by telephone. Only as a last resort is mail used.

If the applicant has worked for more than one employer during the past few years, then an effort is made to contact each of them. It saves time and money in the long run.

If it is possible to do so, check up on his military record. A personal interview with his superior in the service or with some other member of his organization may reveal pertinent information that is not available on his discharge paper.

The Standardized Interview

The "Standardized Interview" sometimes referred to as the "patterned interview" is used to get more facts than can usually be obtained from the personal interview. It is used in the personnel departments of many industries, by the United States Employment Service, and the same general principle was used by the Army Boards of Review in interviewing officer candidates.

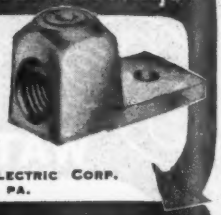
It provides a fairly accurate measure of the personal characteristics which are of prime importance to the successful salesmen.

The "Standardized Interview" is conducted with the use of a form which lists a number of direct questions the applicant is asked to answer. On a separate form or on the same form in some instances, questions are listed which the interviewer asks himself after he has analyzed the answers the applicant has given to questions asked him.

Following the interview, the interviewer makes a complete analysis of the material which in substance is a record of the man's personal history. From this analysis he makes notes of the inconsistencies between answers on the "Weighted Application" and the "Standardized Interview" and also weighs the information he has obtained to determine from his own experience and judgment the measure of capability he should assign to the applicant. Applicants are graded accordingly into groups. Those who are given the highest rating are recommended for immediate employment. Those with the next highest rating are recommended for employment if some difficulty is being experienced in recruiting acceptable candidates. Those in third place are rejected unless there is necessity for salesmen who will be employed at a risk as to their chances for success. They may be employed on a temporary basis. Those in fourth place are rejected permanently.

Aptitude tests have proved entirely practical and satisfactory in employing men and women for mechanical work, but so far there is a very small percentage of the sales managers of the country who believe they are of value in selecting salesmen.

Conductor Fittings



Lugs, Tees, Service Connectors, Grounding Clamps, Straight and Parallel Connectors, Elbows, Cable Taps, etc., etc.

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PENN-UNION

SUBALOX
LEAD AND ALUMINUM PAINT
Spot or Full Coat
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Galvanized Structures.
It sticks, it blends.
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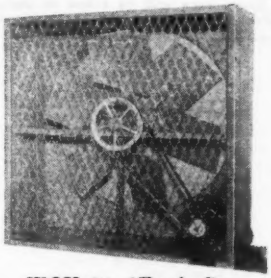
Wind-O-Vent EXHAUST FANS

Portable – Quiet – Dependable – Safe



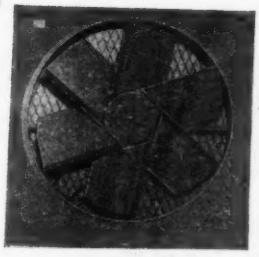
WOV-30 (Typical) Rear View

The Wind-O-Vent Exhaust Fan is built in four sizes with resilient mounted quiet-running, heavy duty motors. Full directions for mounting come with each fan.

This fan is of universal application either as an exhaust fan for commercial use or as a window fan.

CERTIFIED RATINGS

TEST STATEMENT—Each Reed Unit Fan bears a certified rating label of the Propeller Fan Manufacturers Association. This label certifies that the fan has been tested in strict accordance with the Standard Test Code as approved by the American Society of Heating and Ventilating Engineers.



Front View

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Manufacturers of Ventilating Equipment

1001 St. Charles Ave., New Orleans 8, La.

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Is easier to handle

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1000 ROOMS WITH BATH
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MANUFACTURERS OF ELECTRICAL PRODUCTS

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MENOMINEE, MICHIGAN

SUMMER COMFORT IS EASY TO SELL...

....WITH

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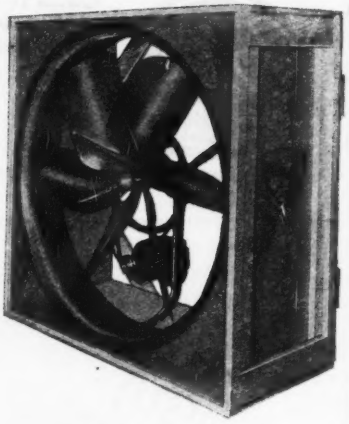
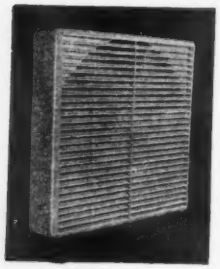
ATTIC FANS and WINDOW FANS





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BAR-BROOK Attic Fans have a complete capacity range from 5,500 to 21,000 CFM, quiet operation at all speeds, one-piece streamlined orifice, thermal overload protection and many other features.

The New **BAR-BROOK** Window Fan has 2 speeds, is only 5¼" thick and is 30" square. To give it a more finished appearance and protection, louvers similar in appearance to venetian blinds are available.

Prepare now for summer sales by writing for illustrated booklets giving full details.

SHREVEPORT ENGINEERING CO.

1553 Texas Ave., Shreveport, La.

BAR-BROOK SHIELDS YOU FROM SUMMER HEAT

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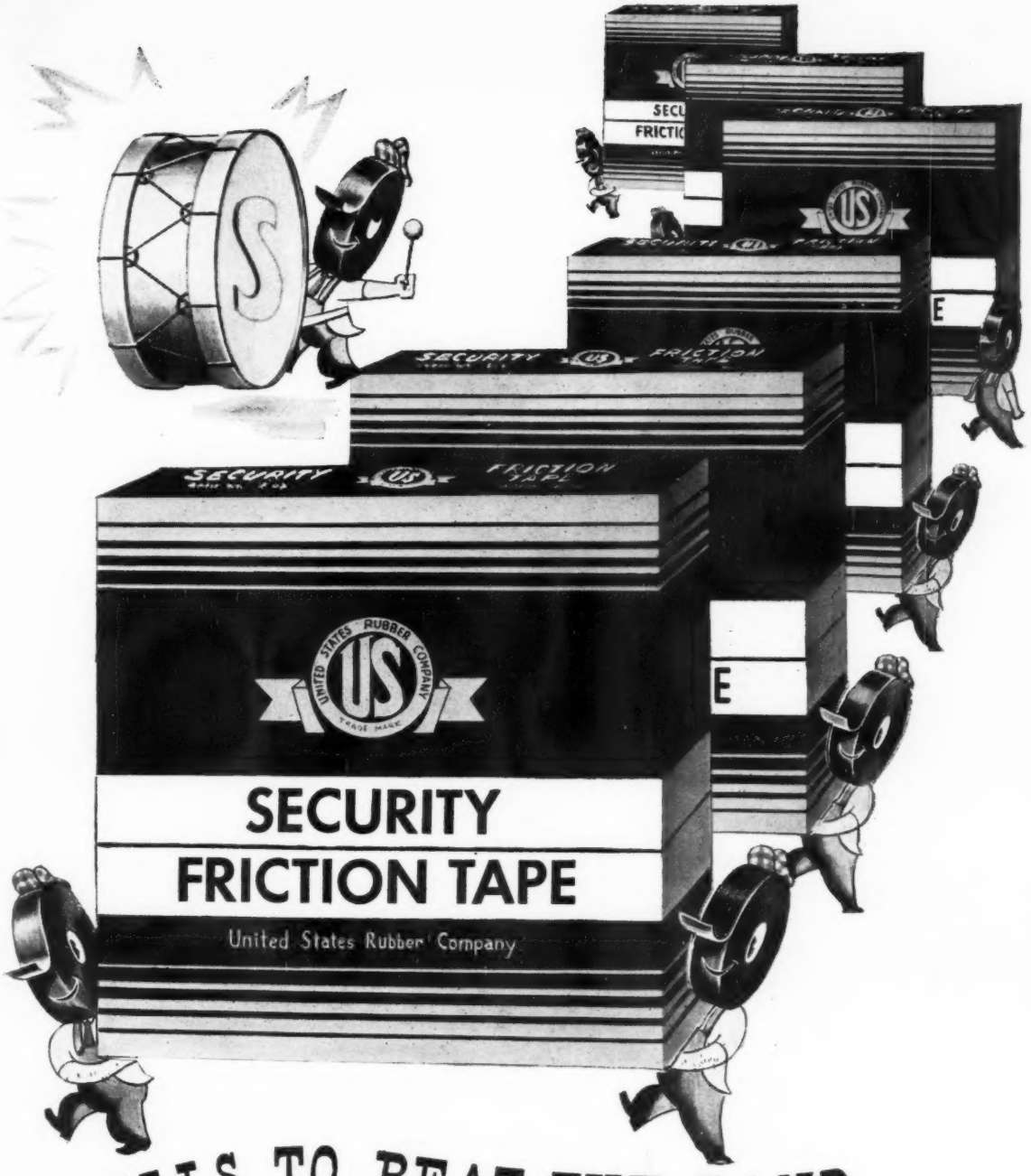

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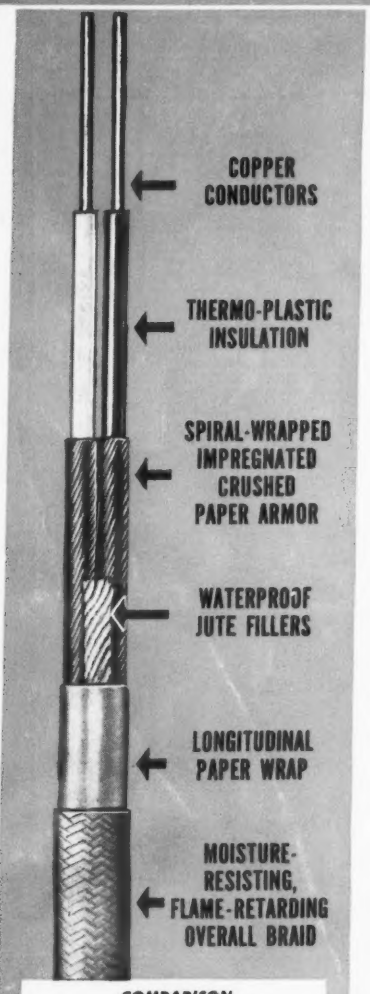
A NEW CABLE FOR HOMES AND FARMS



COMPARISON
CABLE DIMENSIONS

No. 14/2 PVX Non-metallic Sheathed Cable

Type T Conductor—.131 inches
Overall Dimensions—.23 x .44 inches
Weight per M Feet—77 lb.

No. 14/2 Standard Non-metallic Sheathed Cable

Braided rubber-covered conductor—.200 inches
Overall Dimensions—.37 x .63 inches
Weight per M Feet—104 lb.

PVX

REGISTERED TRADE MARK

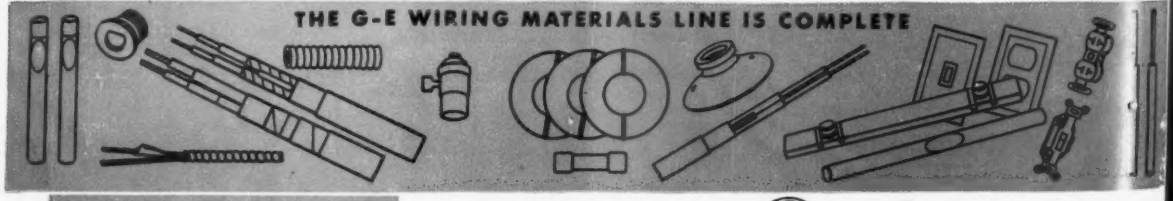
NON-METALLIC SHEATHED CABLE
with Thermo-plastic Insulated Conductors

ADVANTAGES

1. Small overall diameter—easy to handle. Requires smaller holes
2. Lighter weight—Facilitates handling during installation
3. Type T conductors—Insulated with long-life, thermo-plastic compound
4. Small diameter of conductors—Requires less space in outlet boxes
5. Positive conductor identification—Insulation has permanent color
6. Conductor insulation—Resistant to oils, acids and alkalies
7. Insulation and braid—Both are flame- and moisture-resistant
8. Improved braid finish—Smooth, non-tacking and non-marking
9. Free-stripping—Braid, paper armor and insulation all free-stripping
10. High rating—Approved for 60 degree C operation

Use this new Underwriters' approved cable for wiring homes, farm buildings and other small buildings. You'll find PVX easy to install. It has small diameter and is light weight. It can be depended upon to give long service. PVX has Type T conductors insulated with thermo-plastic compound. This insulation is resistant to oils, acids and alkalies. Improved crushed paper armor protects the conductors and overall is a flame- and moisture-resistant braid. PVX is available in sizes 14 to 4 without ground wire.

FOR FURTHER INFORMATION see the nearest G-E Merchandise Dealer or write to Section W262-16, Appliance and Merchandise Dept., Bridgeport, Conn.



GENERAL ELECTRIC